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Fire Damage
FROM INCREASED RUN-OFF AND EROSION
CLEVELAND NATIONAL FOREST

CHARLES C. BUCK, WALLACE L. FONS
AND
CLIVE M. COUNTRYMAN



1948

California Forest and Range Experiment Station
Berkeley, California
Stephen N. Wyckoff, Director

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Other agencies and individuals, in addition to those primarily responsible for the work, contributed in a real way to successful conclusion of the study. Some gave helpful suggestions. Others furnished basic information essential to the study. Particularly helpful were personnel of the U. S. Engineer Office, Los Angeles; Los Angeles County Flood Control District; Los Angeles Office of U. S. Geological Survey; Los Angeles and San Francisco Offices of U. S. Weather Bureau; Washington Office of Division of Forest Influences Research; Experiment Station Division of Flood Control Surveys; Los Angeles County Department of Forester and Fire Warden; Ventura County Water District; Orange County Water District; city water departments; and many local water companies.

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FIRE DAMAGE FROM INCREASED RUN-OFF AND EROSION

CLEVELAND NATIONAL FOREST

By

Charles C. Buck, Wallace L. Fons, and Clive M. Countryman^{1/}

NEED FOR DAMAGE APPRAISALS

Protection from fire has long been recognized as the key to successful management of the mountain watershed lands as an integral part of the whole southern California economy. Planning and replanning the organization, facilities, and finances necessary to provide a level of protection that will satisfy current needs of the growing community at a justifiable cost is a continuous and important part of the management effort. An essential first step in this activity is to obtain up-to-date information on the specific damages that result from fire occurrence. Actual damages must be appraised as the fires occur to provide a current check on the effectiveness of the protection afforded. Potential damages expected under different levels of protection intensity must also be estimated to serve as guides for determining whether increases or decreases in the protection effort are necessary or warranted. Maintaining protection intensity in step with the local economy is a particularly difficult and currently critical problem throughout the southern California region.

Damages from fires in southern California are frequently of several kinds. Fires destroy structural improvements; they consume forage used by domestic stock and wildlife; they interrupt or make necessary the rerouting of traffic while they are burning; they disrupt normal business and recreational uses within the general fire area. By removing the vegetation cover they also change the run-off and erosion characteristics of the watersheds themselves. This change causes delayed and oftentimes hidden, and thus usually uncounted but nonetheless real and far-reaching damage. All these forms of damage must be evaluated to obtain an adequate appraisal of the effects of fire.

^{1/} California Forest and Range Experiment Station, maintained by the Forest Service, U. S. Department of Agriculture, at Berkeley, California in cooperation with the University of California.



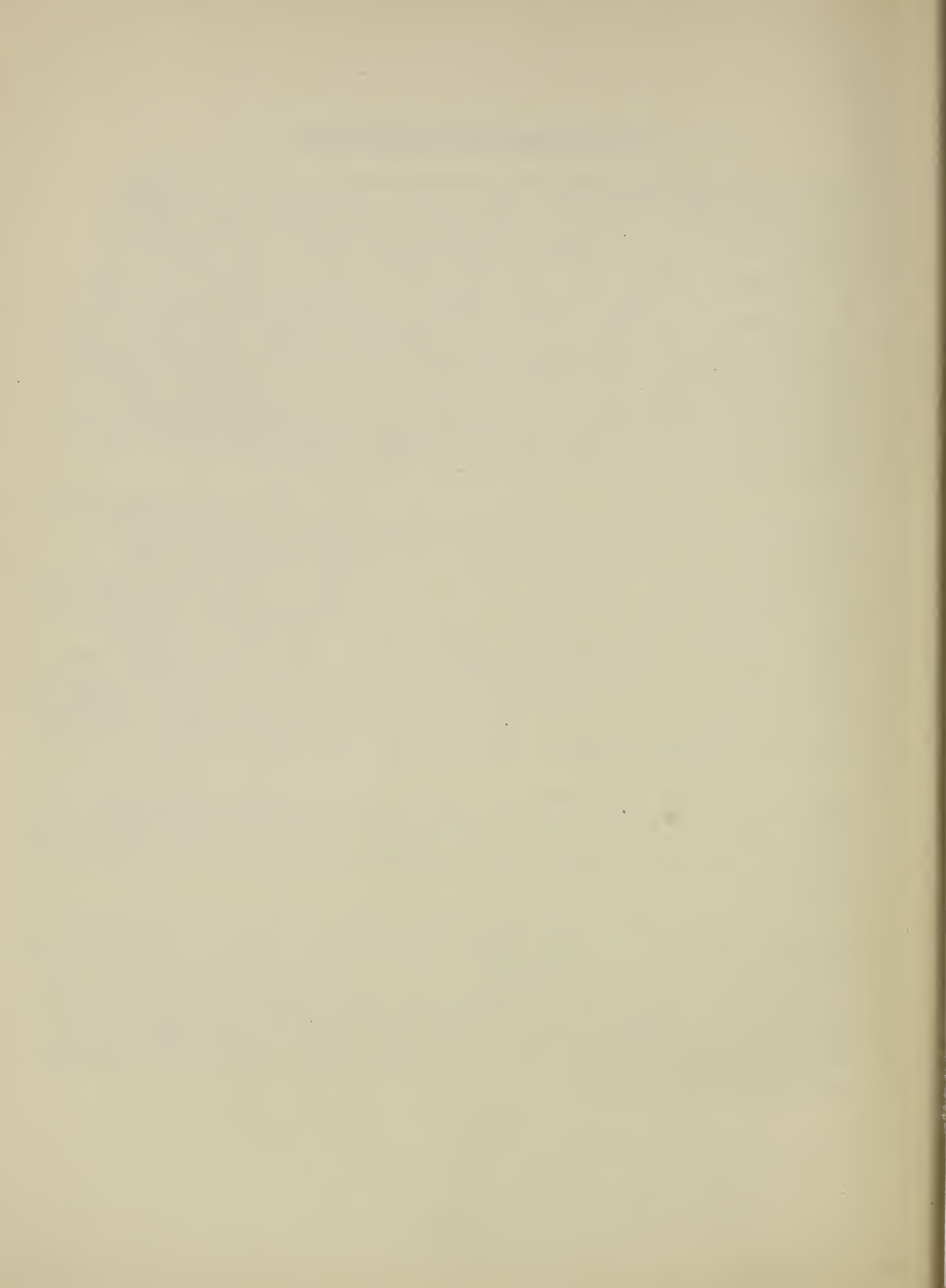
THE WATERSHED FIRE DAMAGE STUDY

Many of the foregoing damages can be evaluated in dollars by direct field examination immediately after a fire. Damages due to changed run-off and erosion rates of a watershed, on the other hand, usually accumulate for varying periods of years after fire. This portion of fire damage -- termed here "watershed fire damage" -- must therefore be predicted in advance of actual occurrence if the appraisal of total fire damage is to serve a useful purpose in current fire control practice. The only practical way thus far proposed by which this can be done is to establish the relationships between run-off and erosion and damage and then to estimate the damages by forecasting the changes in run-off and erosion brought about by fire. This involves an inventory and a detailed systematic analysis of a large number of complex physical and economic factors that enter into the problem. Such analyses for fire damage appraisal purposes have not been made heretofore.

The present study was initiated as an exploratory step in this new field. Its objective was to provide estimates of watershed fire damage that would serve as a practical basis for fire damage appraisals on the southern California national forests. To accomplish this objective it was necessary first to bring into focus and then to evaluate on a physical basis various aspects of damage which have previously been overlooked or merely estimated from personal judgment alone. The study, concerned exclusively with the watershed damage portion of total fire damage, was carried out in three separate phases: (1) developing and adapting appropriate methods for each of the many steps required in the actual calculations, (2) gathering data on each of the physical and economic factors concerned, and (3) subjecting the data to analysis and compiling the damage estimates.

Many of the methods used were new and previously untried. Many compromises were necessary, owing to meager records of past watershed performance and other important factors, and to other causes. Even with these limitations, however, the results appear to be generally acceptable for land management purposes.

This publication, which represents part of the end result of the study, contains tables of estimated run-off and erosion damages of different kinds resulting from fire on watersheds of the Cleveland National Forest. The tables do not include such damages as those resulting from destruction of improvements, forage, timber, recreation uses and the like by fire itself. These direct fire damages must be appraised separately and added to the watershed damages tabulated in this volume. Some of these other damages are listed on page viii.



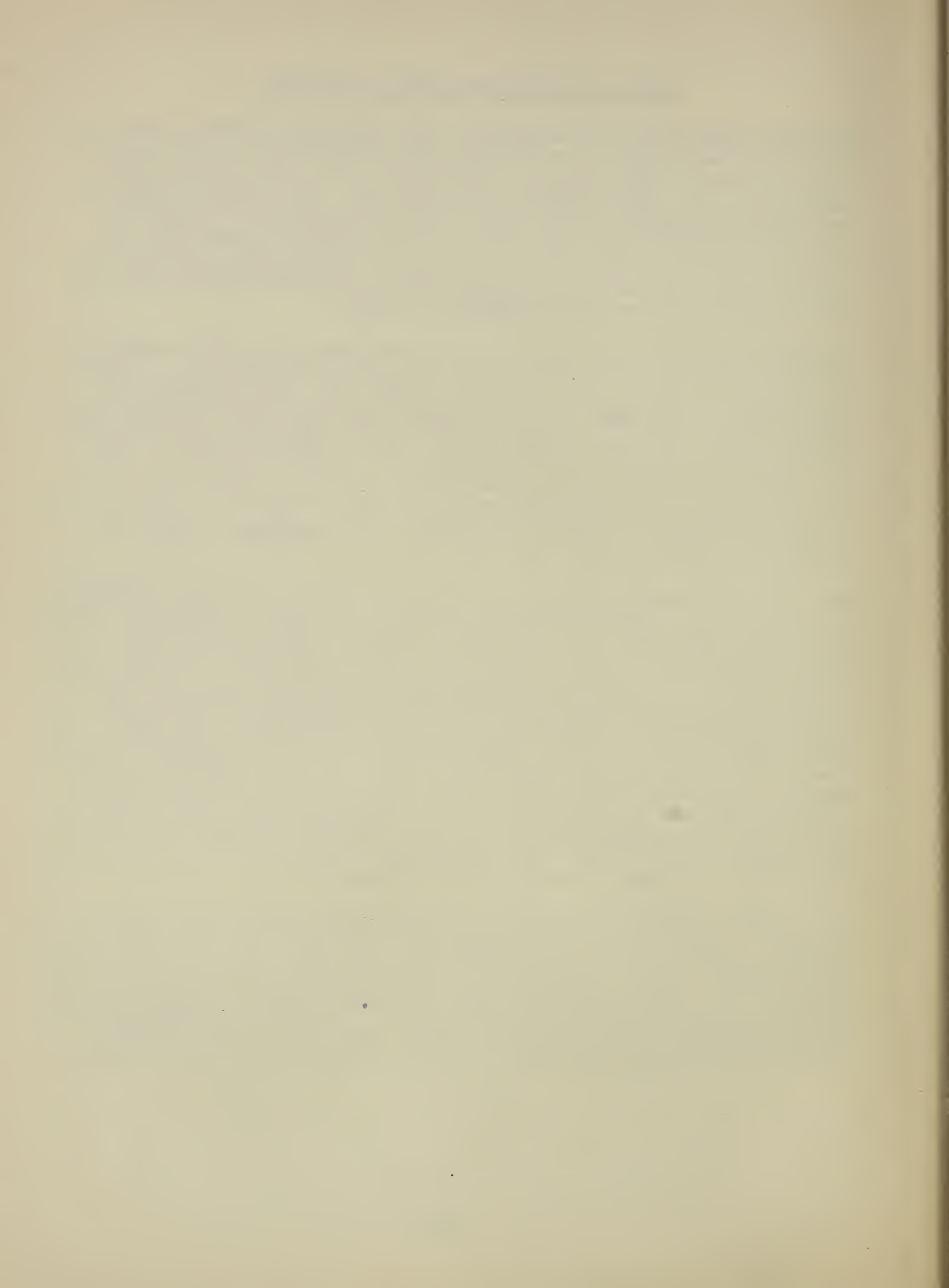
NATURE OF WATERSHED DAMAGES CONSIDERED

Watershed damages for the purpose of this study are limited primarily to the dollar costs directly attributable to run-off and erosion from the mountain areas. These costs are the expenses met with in using and maintaining land, improvements, and resources. They include repairs to improvements damaged or sale value of those destroyed by run-off and erosion, as well as such indirect costs as emergency expenditures required to maintain uses and services during storm periods, and expense for rental of alternate facilities during the periods required for repair or replacement of those damaged by floods.

Detailed studies of the southern California flood and erosion problem have indicated that increased rates of run-off and deposition of debris downstream may persist for many years after fire. The potential increases above the normal rates are largest the first year, moderate for about 5 years, and then decline slowly for the remaining years required for complete recovery of the watershed. The evidence indicates that many watershed units require considerably in excess of 50 years for return to normal. In appraising watershed damage resulting from fire, it is thus necessary to cumulate the damages from increased run-off and erosion on the burned area each year during the recovery period.

The watershed damages tabulated in this publication represent differences between (1) estimated damage cumulated from time of burning to time of complete watershed recovery and (2) estimated damage which would have taken place during the same period had the fire not occurred. The damages which will actually accrue in any particular year on either a burned or on an unburned watershed depend among other things on the amount, intensity, and distribution of the precipitation that year. Since there is no way of telling what this will be for individual future years, the results of the study indicate only the most probable damages over a long period of time that can be expected for a fire of average intensity and average location within a watershed unit. For any individual fire the actual damage that will be experienced may, of course, be either greater or less than the average because of an odd sequence of flood years or other unforeseeable circumstances.

The damage estimates, expressed in dollars, are based on 1941 price levels. It was assumed for purposes of this study that this price level would prevail during the period in which the damages are expected to accrue. No allowance was made for future developments in either the upstream or the downstream flood paths, nor for changes in present watershed performance caused by future fires. Revision of the estimates should thus be made from time to time as changing conditions warrant.



WATERSHED DAMAGE ESTIMATES

For application of the principles and methods developed in the damage appraisal study, the Cleveland National Forest has been divided into 34 damage appraisal units. Each unit consists of the upstream portion of a single stream, a major tributary, or a slope facet.

Within each of these units the peak discharge per square mile for each flood event and the volume of debris per year per square mile of watershed were determined as the two basic measures of watershed performance on which to base the calculations of watershed damage. These measures of run-off and erosion were estimated from analysis of past records of precipitation, streamflow, sedimentation, and of such watershed factors as geology, soils, shape and steepness of watershed, and kind and condition of the vegetation. Run-off and erosion rates were applied uniformly to all upstream areas within the individual appraisal units.

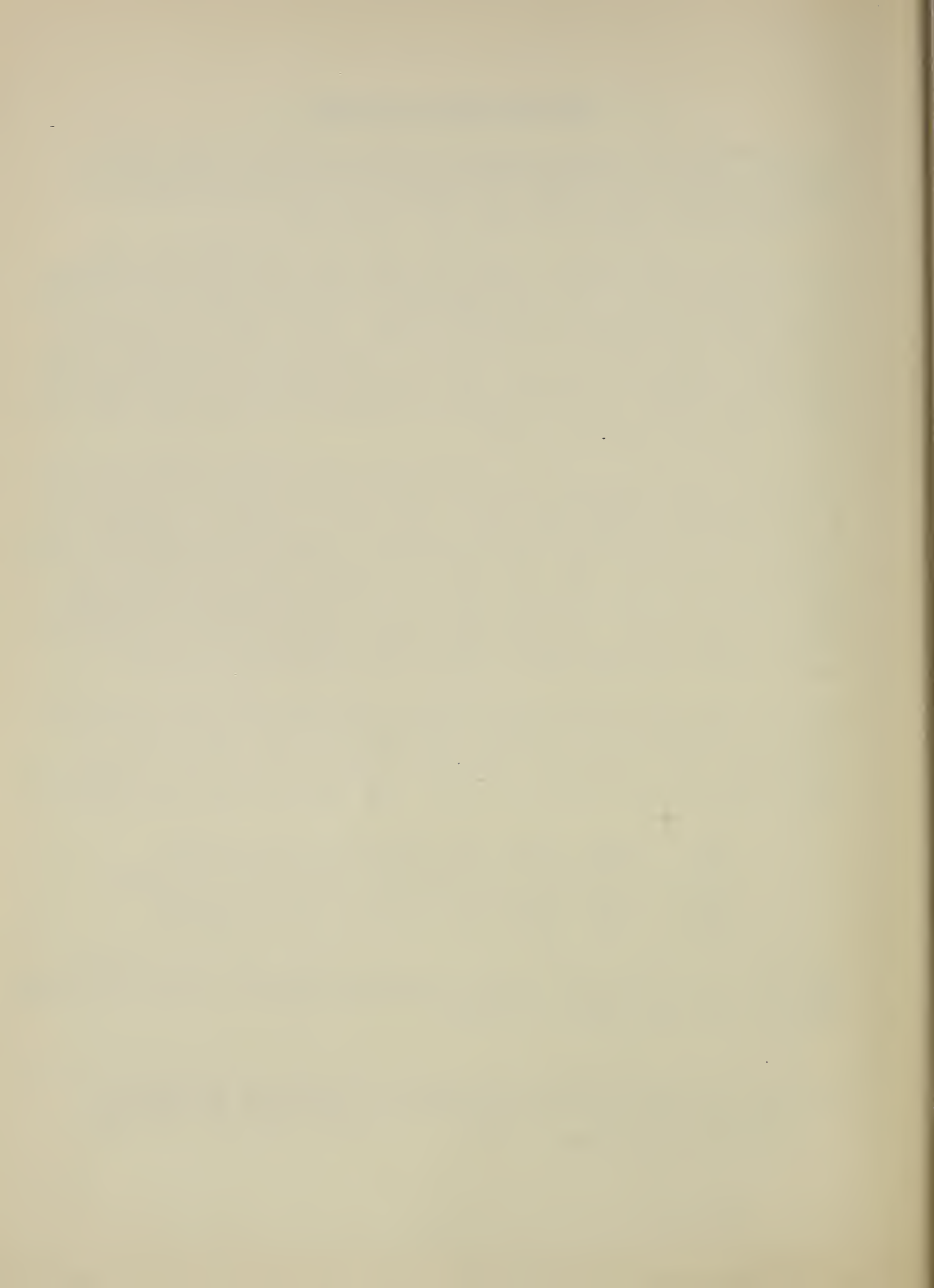
For the purpose of this study it was assumed that storms of given size and intensity in the future will have the same average frequency of occurrence as the available records show them to have had in the past. Estimates of run-off and erosion under this precipitation pattern were prepared for each watershed when normal--with fully recovered vegetation, for each year after burning, and for each year from 1945 to estimated time of recovery from past fires^{1/}. Recovery periods vary widely between different watersheds covered by the study. The majority, however, appear capable of recovering to near normal within 70 years. Hence, for simplicity in calculating damages on all watersheds were cumulated for this 70 year period.

Because of the non-uniform distribution of upstream values and differences in their susceptibility to damage, each appraisal unit was further subdivided into one or more slope and canyon bottom zones. These are areas considered to be sufficiently uniform in character that average damage rates can be applied without excessive error. The zones have been designated as:

- Zone 1 - upper slopes with prevailing north exposures
- Zone 2 - lower slopes with prevailing north exposures
- Zone 3 - principal canyon bottoms susceptible to flooding
- Zone 4 - lower slopes with prevailing south exposures
- Zone 5 - upper slopes with prevailing south exposures

Appraisal units were divided into two or more appropriate zones whenever differences were apparent, either in damageable values at stake or in damage rates for any given storm occurrence.

^{1/} Peak Discharge and Erosion from Southern California Watersheds as Influenced by Fire. P. B. Rowe, H. C. Storey and C. M. Countryman, typewritten manuscript.



Damageable values associated with each watershed unit and zone were compiled from two sources. Downstream values were obtained from both published and unpublished data collected by the Corps of Engineers and by the Department of Agriculture Surveys for Flood Control for areas in which such surveys have been made. The remaining downstream values and all upstream values, together with their susceptibilities to damage, were obtained from field inventories made as part of the damage appraisal study.

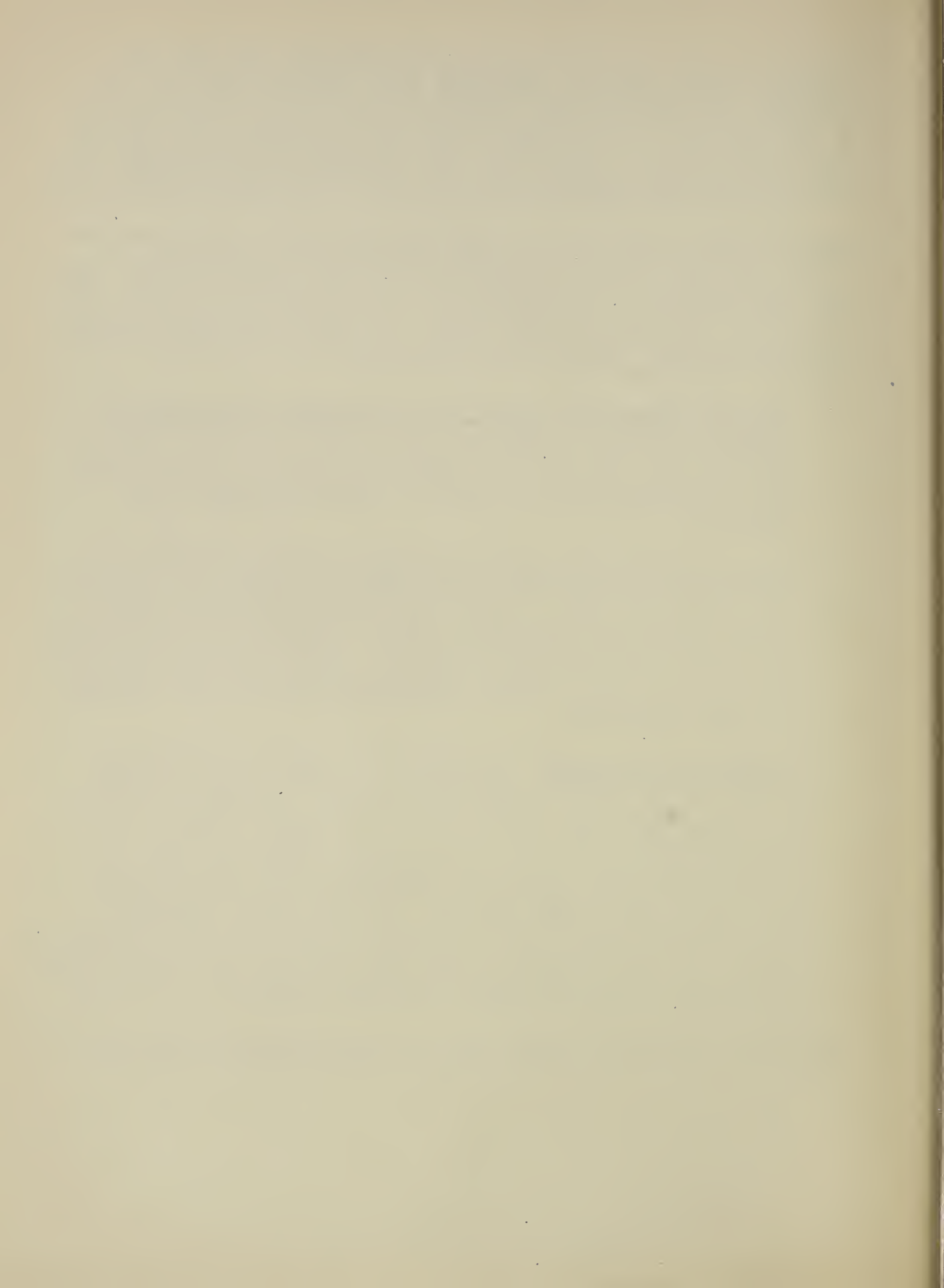
Damage to each of the different kinds and locations of values considered in the study was calculated separately according to the way each is normally affected by the occurrence of run-off and debris movement. The many steps required in the analysis are too numerous for inclusion here, but will be described in a later paper. Different methods were developed for determining the three kinds of damage recorded in the damage tables. The basic differences were as indicated below.

Upstream damages and those in the downstream overflow area were computed in terms of physical damage to the inventoried improvements by individual storms weighted according to their frequency of occurrence, plus any loss suffered by the use associated with each improvement item as a result of physical damage to the property.

The cost of handling and storing debris--usually included in the past as part of downstream flood damage--was separately calculated in the present study. This was done because such cost is not always associated with physical damage to improvements and because it is large and relatively important. Costs of handling or storing the annual volume of debris resulting from erosion were calculated on the basis of its probable downstream distribution as indicated by field inspection.

Damage to water supply was calculated in terms of acre feet of water lost to domestic, agriculture, or power use due to pollution or other causes during storm periods. The effects of fire on underground water supplies and on the annual volume of recoverable streamflow were NOT included in the damage estimates. To include them would require the gathering of much more data and a much more detailed analysis of individual flood events than was possible in the current project. The water supply considered was therefore restricted to that taken from stream diversions for domestic, irrigation, and power uses wherever these were inventoried, and damage was restricted to the kinds for which calculations could reasonably be made in terms of the peak discharge for each flood.

No attempt was made to evaluate loss of life or social and other intangible damages for which there are no generally accepted dollar equivalents.



HOW TO USE THE DAMAGE TABLES

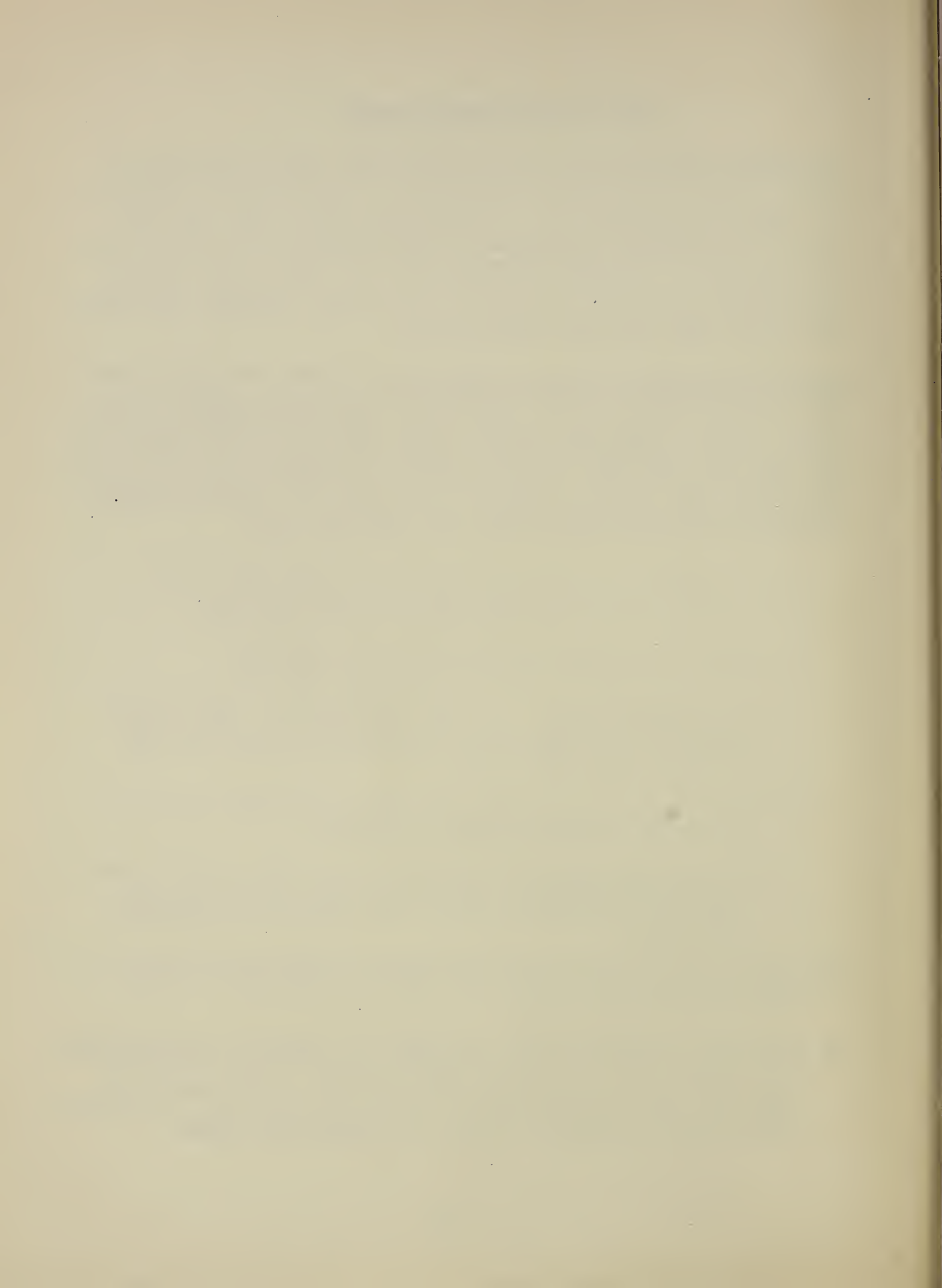
The damage estimates in the accompanying tables may be used with only slight variations of method in a number of fire control activities. Three of these activities for which there is opportunity for immediate and important application are (1) appraising damage from individual fires, (2) estimating the changes in fire damage that will result from the increased or decreased numbers or sizes of future fires expected under different intensities of protection, and (3) planning strategy and deciding priorities for action on going fires. Methods appropriate for each of these uses are outlined below.

In appraising damage from individual fires, run-off and erosion damage must be determined separately for each of the damages listed in the tables and separately for the area burned within each Damage Appraisal Unit^{1/}. When a single fire burns in more than one unit the totals for each unit must therefore be added together to determine the total watershed damage for the fire. Direct fire damages must be added to this figure to obtain total fire damage. The following steps are necessary to compute watershed damage within each Appraisal Unit:

1. Determine the total area burned in the Appraisal Unit.
2. Determine the total area burned in each slope zone.
3. Turn to the damage table for the unit concerned.
4. On the top portion of the table under each of the upstream slope zones burned - (1), (2), (4), and (5) - read dollars damage per acre opposite the size class in which the area burned in each zone^{2/} falls.
5. Multiply the dollars per acre read in each zone column by the number of acres burned in that zone.
6. On the bottom portion of the table under each of the columns headed "other damages" read dollars per acre opposite the size class in which the total area burned in the appraisal unit^{2/} falls.

1/ Damage Appraisal Units and slope zones are indicated on sketch maps that follow the tables.

2/ Note that the maximum area, in acres, to be used in computing damage is in some cases less than the actual area of the zone or unit. This smaller figure represents the total area in the zone or unit that will have increased run-off and erosion after fire. The remainder will not be affected by fire to an appreciable extent.



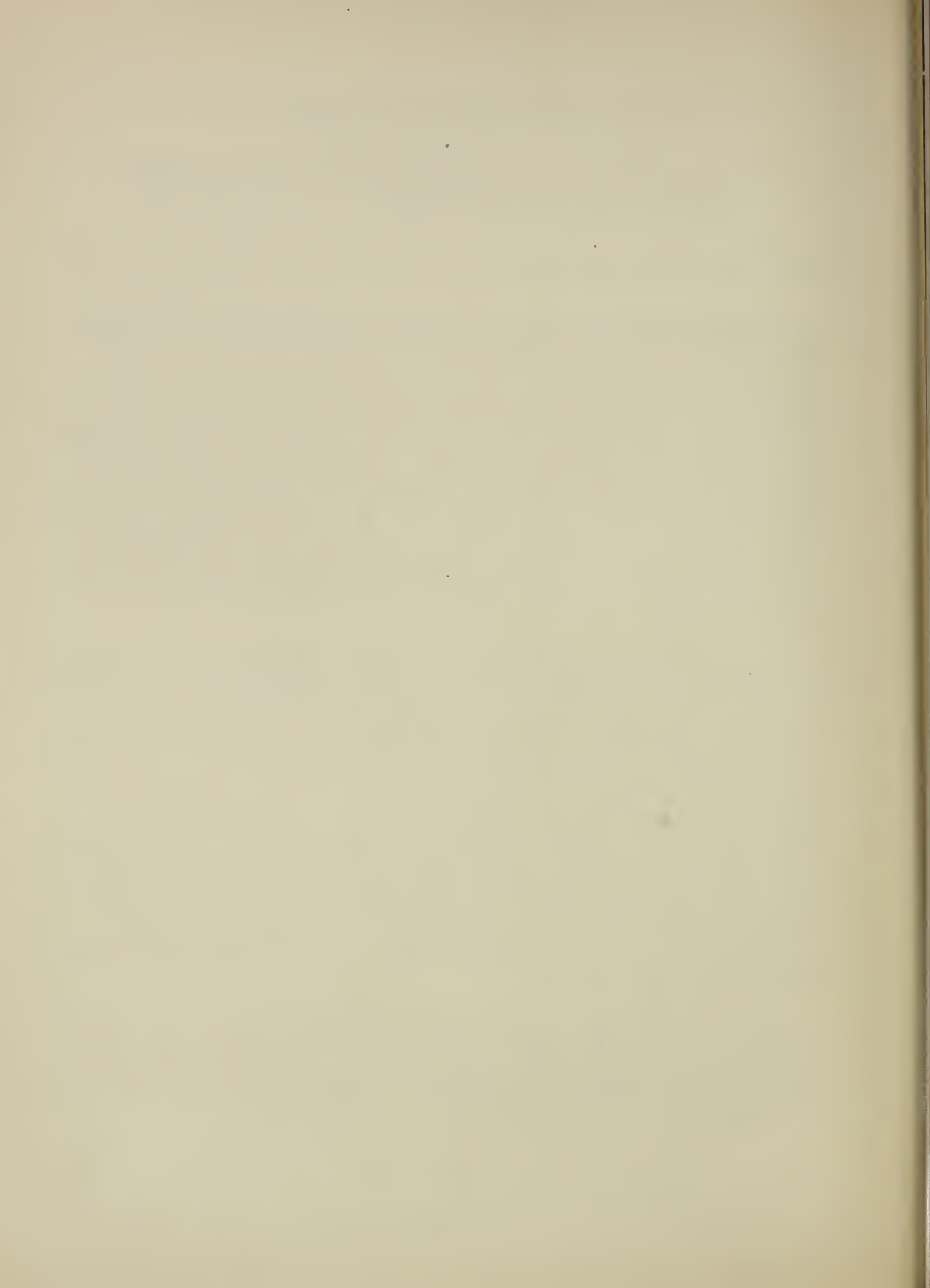
7. Multiply the dollars per acre read in each of these columns by the total acres burned in the appraisal unit.
8. Add together the dollars damage computed for the separate columns on the top and bottom portions of the table to obtain the total estimated damage for the Appraisal Unit.

If the fire burned in more than one Appraisal Unit, add the totals computed independently for each one to obtain a total for the whole fire.

In estimating the changes in fire damage that will result from changes in the numbers or sizes of future fires it is necessary to estimate damage for the individual future fires predicted. In order to apply the tables for this purpose, the number of burned acres to be assigned to each of the upstream slope zones burned must be decided for each presumed fire. Any distribution within an appraisal unit may be assumed that will suit the specific purpose at hand. It should be satisfactory in most instances of planning, however, to assume that fires on the average will be distributed among the respective zones in proportion to their relative burnable areas within the unit. The appropriate areas in acres are given in the tables for each unit and zone. Average watershed damage estimates for different sizes of fires have been computed from the tables on this basis for all damage appraisal units within the southern California study area. These are planned for distribution as a separate release.

In planning strategy and deciding priorities for action on going fires the tables should be used in the manner most appropriate for the specific problem at hand. For example: (1) where the problem of balancing suppression cost against potential damage arises in planning strategy, total watershed damage inside a tentative control line may be calculated from the tables in the same manner as if the area were burned, (2) where the problem of deciding priorities for line action on a fire involves a choice of local areas to be sacrificed to attain a particular burned area objective for the fire, comparisons should be made between the damage rates given in the tables for the particular zones and appraisal units involved; (3) where the problem is concerned with establishing priorities for action on more than one going fire--particularly where tentative control lines have not been decided--average damage rates determined from the tables as described in the preceding paragraph should usually provide an adequate measure of the relative damage potentials of the fires involved.

It should be noted that wherever used these damage estimates are directly applicable only to the specific damage appraisal units for which they were prepared. Using them as guides, however, useable estimates may be made of average damages to be expected on adjacent areas that are reasonably comparable in terrain and degree of development.



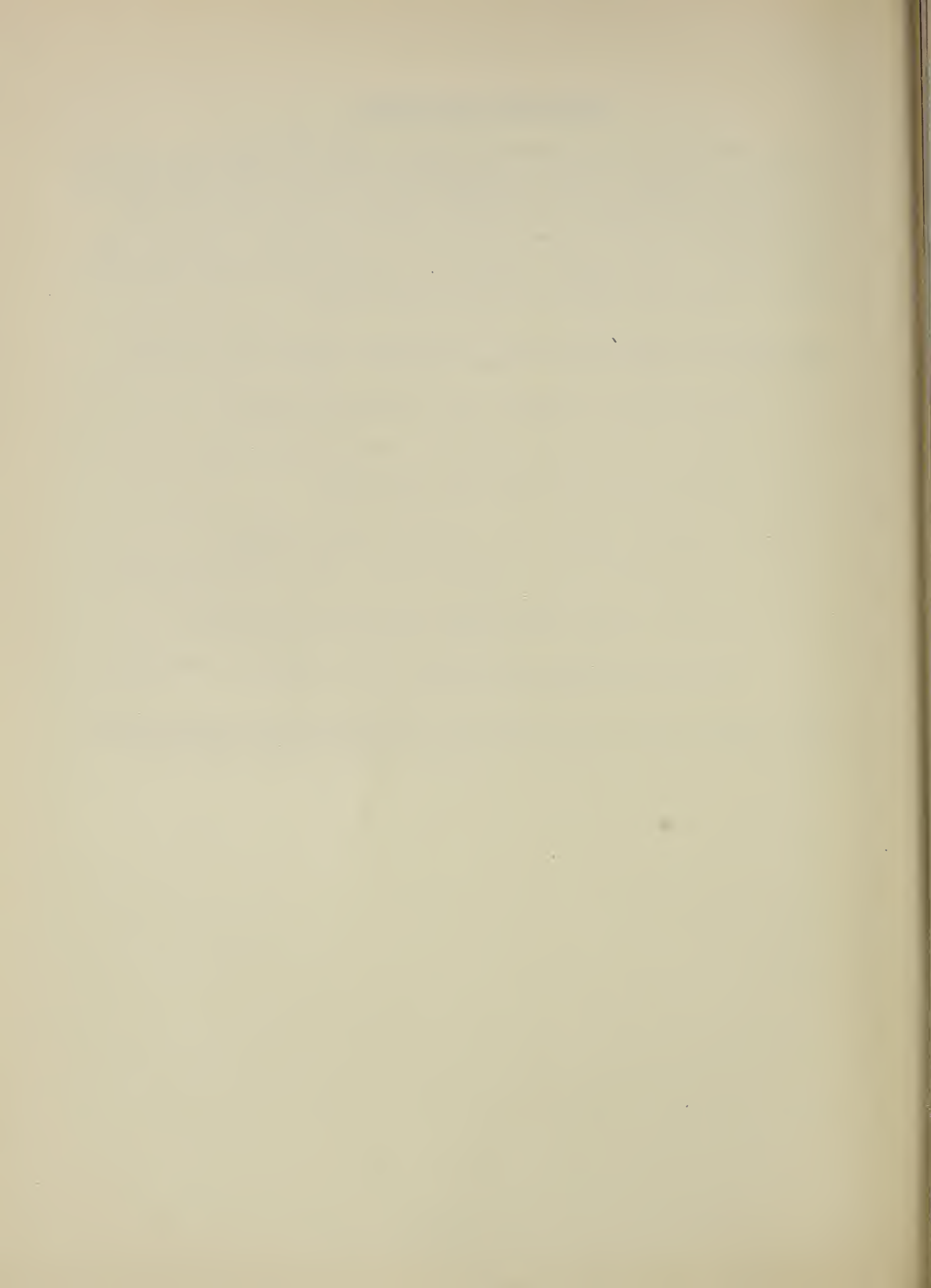
ADDITIONAL FIRE DAMAGES

It was indicated in the beginning that a single fire may have several effects, all of which must be evaluated to secure an adequate appraisal of true fire damage. The fire damage resulting from increased run-off and erosion was selected for special treatment here because of its general importance in southern California and because it requires the application of specialized methods for its evaluation. The total of other forms of fire damage, however, may frequently surpass watershed damage in magnitude and should not be overlooked.

Among the more important forms of additional damage that should be considered in making a fire damage appraisal are:

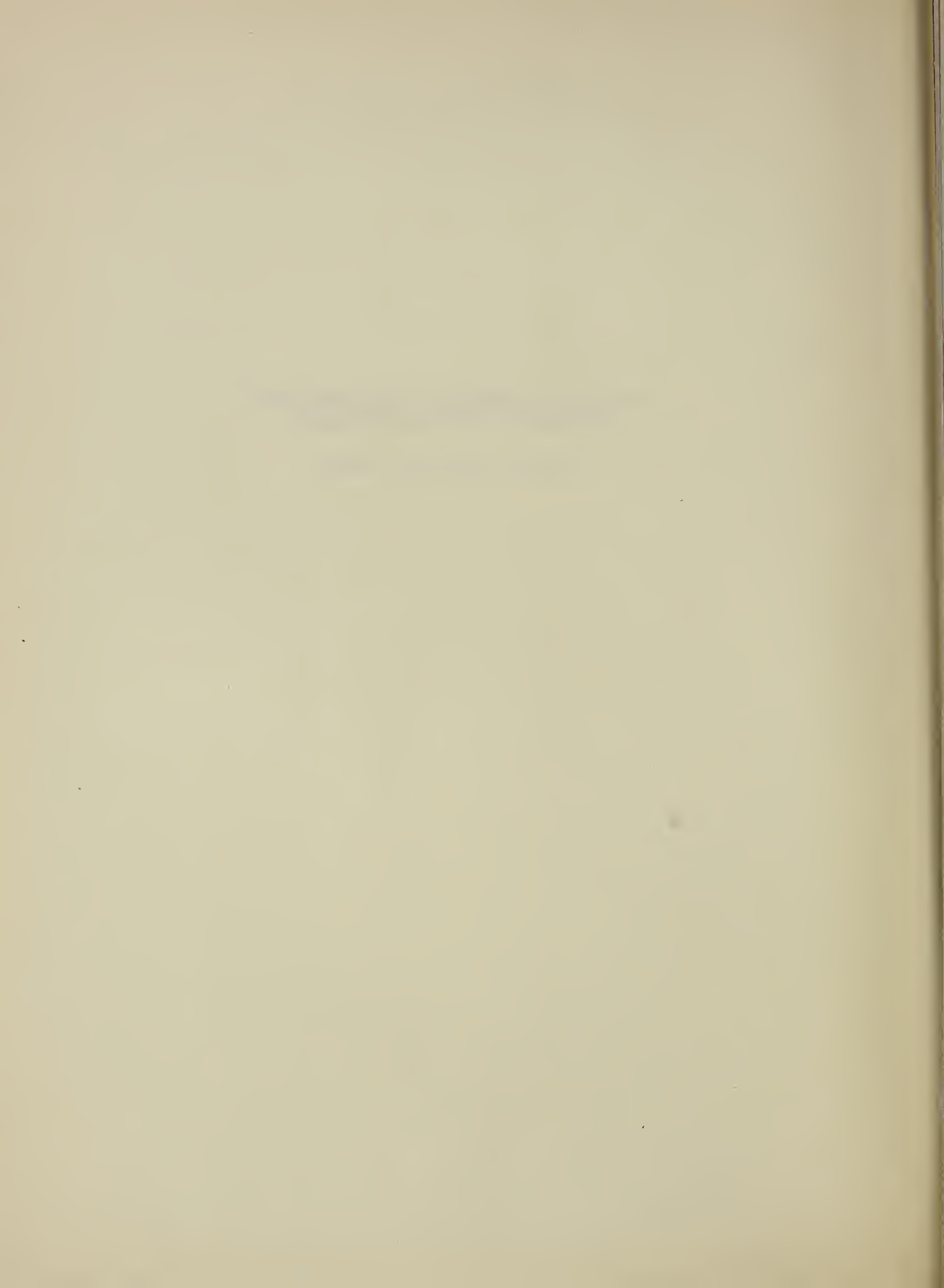
1. Destruction of property and resources by fire.
2. Short and long period losses of recreational use.
3. Game animals and other wildlife killed.
4. Forage for wildlife and domestic animals damaged.
5. Costs of evacuation, traffic blocks, etc., during the fire.
6. Loss of revenue from damaged property and resources.
7. Rental of alternate facilities during repair or replacement of facilities damaged by fire.

These elements should be considered in estimating the probable damage from future fires as well as in making current damage appraisals.



TABLES OF EXPECTED FIRE DAMAGE FROM
INCREASED RUN-OFF AND EROSION

Cleveland National Forest



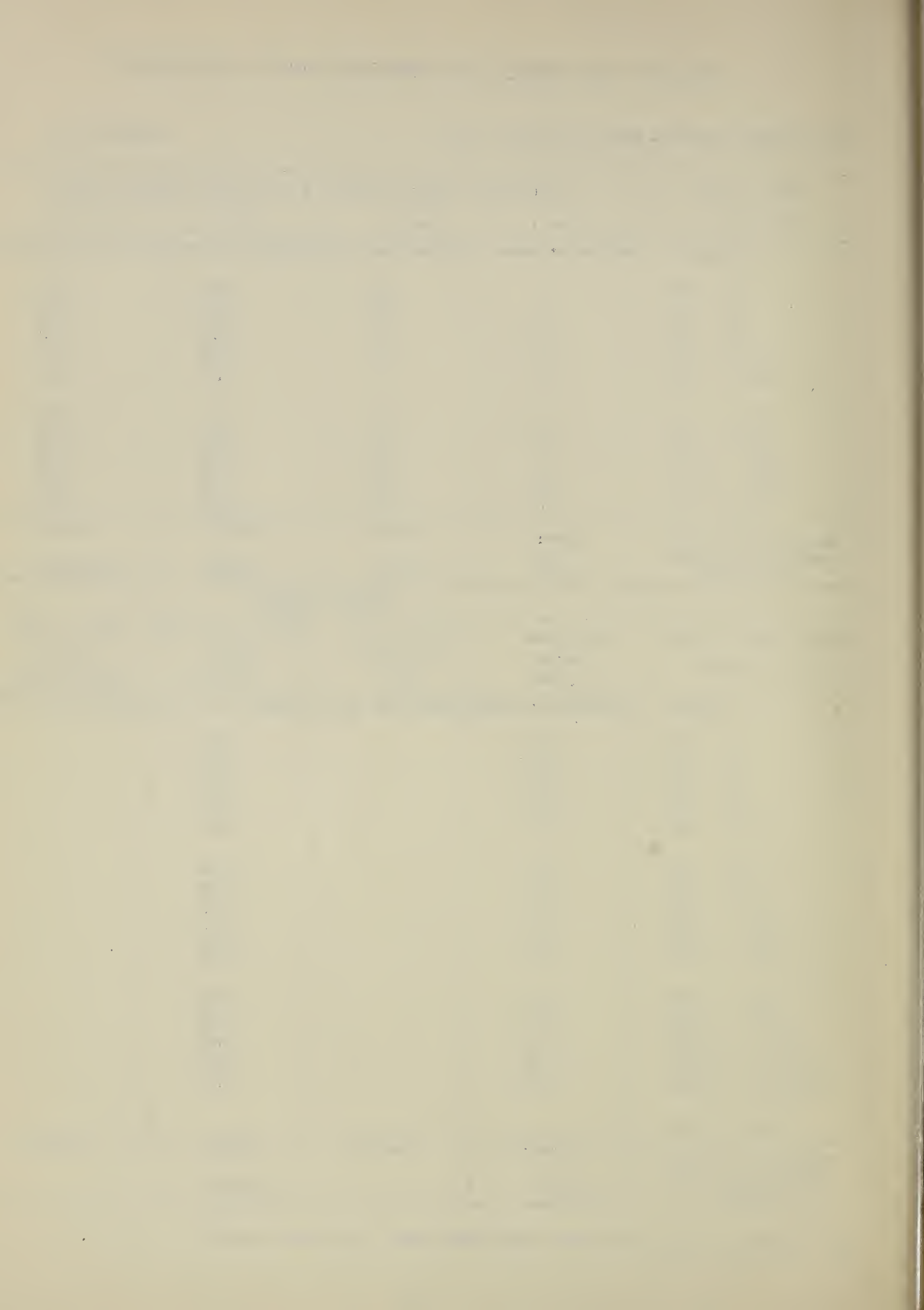
EXPECTED FIRE DAMAGE FROM INCREASED RUN-OFF AND EROSION ^{1/}

Fire damage appraisal unit: La Posta Creek

Unit No. C-1

Area burned by zones	DAMAGE TO IMPROVEMENTS ON UPSTREAM SLOPES BURNED			
	Zone 1	Zone 2	Zone 4	Zone 5
(acres)	(dollars per acre)	(dollars per acre)	(dollars per acre)	(dollars per acre)
0 - 20	0.00	0.05	0.05	0.00
21 - 40	0.00	0.20	0.25	0.00
41 - 60	0.05	0.35	0.40	0.00
61 - 100	0.10	0.50	0.65	0.00
101 - 180	0.15	0.65	1.10	0.05
181 - 300	0.25	0.65	1.45	0.05
301 - 600	0.30	0.65	1.45	0.05
601 - 1000	0.30	0.65	1.45	0.05
1001 - 1750	0.30	0.65	1.45	0.05
Over 1750	0.30	0.65	1.45	0.05
Maximum area for computing damage on slopes	(acres) 6,490	(acres) 3,648	(acres) 7,992	(acres) 12,697
OTHER DAMAGES				
Total area burned in all zones	Upstream canyon bottom	Downstream overflow area	Debris storage and/or removal	Water from stream diversions
(acres)	(dollars per acre)	(dollars per acre)	(dollars per acre)	(dollars per acre)
0 - 20	0.00		0.05	
21 - 40	0.00		0.35	
41 - 60	0.00		0.55	
61 - 100	0.00		0.90	
101 - 180	0.00		1.55	
181 - 300	0.00		2.65	
301 - 600	0.00		4.90	
601 - 1000	0.00		6.80	
1001 - 1750	0.00		6.80	
1751 - 3000	0.00		6.80	
3001 - 5000	0.05		6.80	
5001 - 9000	0.05		6.80	
9001 - 15,000	0.15		6.80	
15,001 - 25,000	0.25		6.80	
25,001 - 50,000	0.35		6.80	
Over 50,000				
Maximum area for computing other damages	(acres) 30,827	(acres)	(acres) 30,827	(acres)

^{1/} Based on 1945 watershed conditions and 1941 price levels.



EXPECTED FIRE DAMAGE FROM INCREASED RUN-OFF AND EROSION ^{1/}

Fire damage appraisal unit: Kitchen Creek

Unit No. C-2

Area burned by zones (acres)	DAMAGE TO IMPROVEMENTS ON UPSTREAM SLOPES BURNED			
	Zone 1 (dollars per acre)	Zone 2 (dollars per acre)	Zone 4 (dollars per acre)	Zone 5 (dollars per acre)
0 - 20			0.05	0.00
21 - 40			0.10	0.00
41 - 60			0.20	0.00
61 - 100			0.35	0.05
101 - 180			0.40	0.05
181 - 300			0.40	0.10
301 - 600			0.40	0.10
601 - 1000			0.40	0.10
1001 - 1750			0.40	0.10
Over 1750			0.40	0.10
Maximum area for computing damage on slopes	(acres)	(acres)	(acres) 2,895	(acres) 10,974
OTHER DAMAGES				
Total area burned in all zones (acres)	Upstream canyon bottom (dollars per acre)	Downstream overflow area (dollars per acre)	Debris storage and/or removal (dollars per acre)	Water from stream diversions (dollars per acre)
0 - 20	0.00		0.05	
21 - 40	0.00		0.30	
41 - 60	0.00		0.50	
61 - 100	0.00		0.80	
101 - 180	0.00		1.40	
181 - 300	0.00		2.45	
301 - 600	0.00		4.50	
601 - 1000	0.00		6.20	
1001 - 1750	0.00		6.20	
1751 - 3000	0.00		6.20	
3001 - 5000	0.00		6.20	
5001 - 9000	0.05		6.20	
9001 - 15,000	0.10		6.20	
Over 15,000				
Maximum area for computing other damages	(acres) 13,869	(acres)	(acres) 13,869	(acres)

^{1/} Based on 1945 watershed conditions and 1941 price levels.

EXPECTED FIRE DAMAGE FROM INCREASED RUN-OFF AND EROSION ^{1/}

Fire damage appraisal unit: Cottonwood Creek

Unit No. C-3

Area burned by zones (acres)	DAMAGE TO IMPROVEMENTS ON UPSTREAM SLOPES BURNED			
	Zone 1 (dollars per acre)	Zone 2 (dollars per acre)	Zone 4 (dollars per acre)	Zone 5 (dollars per acre)
0 - 20			0.25	0.05
21 - 40			1.05	0.15
41 - 60			1.80	0.25
61 - 100			2.85	0.35
101 - 180			4.95	0.60
181 - 300			8.50	1.05
301 - 600			10.90	1.35
601 - 1000			10.90	1.35
1001 - 1750			10.90	1.35
Over 1750			10.90	1.35
Maximum area for computing damage on slopes	(acres)	(acres)	(acres) 3,815	(acres) 8,128
OTHER DAMAGES				
Total area burned in all zones (acres)	Upstream canyon bottom (dollars per acre)	Downstream overflow area (dollars per acre)	Debris storage and/or removal (dollars per acre)	Water from stream diversions (dollars per acre)
0 - 20	0.00		0.20	
21 - 40	0.00		0.85	
41 - 60	0.00		1.45	
61 - 100	0.00		2.30	
101 - 180	0.00		4.00	
181 - 300	0.05		6.90	
301 - 600	0.10		12.70	
601 - 1000	0.15		17.50	
1001 - 1750	0.25		17.50	
1751 - 3000	0.40		17.50	
3001 - 5000	0.70		17.50	
5001 - 9000	1.20		17.50	
9001 - 15,000	2.10		17.50	
Over 15,000				
Maximum area for computing other damages	(acres) 11,943	(acres)	(acres) 11,943	(acres)

^{1/} Based on 1945 watershed conditions and 1941 price levels.

EXPECTED FIRE DAMAGE FROM INCREASED RUN-OFF AND EROSION ^{1/}

Fire damage appraisal unit: Bear Valley

Unit No. C-4

Area burned by zones (acres)	DAMAGE TO IMPROVEMENTS ON UPSTREAM SLOPES BURNED			
	Zone 1 (dollars per acre)	Zone 2 (dollars per acre)	Zone 4 (dollars per acre)	Zone 5 (dollars per acre)
0 - 20	0.00	0.05	0.05	0.00
21 - 40	0.10	0.20	0.20	0.05
41 - 60	0.15	0.35	0.30	0.15
61 - 100	0.25	0.55	0.50	0.20
101 - 180	0.40	0.95	0.80	0.35
181 - 300	0.75	1.20	1.10	0.60
301 - 600	0.95	1.20	1.10	0.75
601 - 1000	0.95	1.20	1.10	0.75
1001 - 1750	0.95	1.20	1.10	0.75
Over 1750	0.95	1.20	1.10	0.75
Maximum area for computing damage on slopes	(acres) 3,014	(acres) 2,566	(acres) 2,938	(acres) 4,032
OTHER DAMAGES				
Total area burned in all zones (acres)	Upstream canyon bottom (dollars per acre)	Downstream overflow area (dollars per acre)	Debris storage and/or removal (dollars per acre)	Water from stream diversions (dollars per acre)
0 - 20			0.35	
21 - 40			1.50	
41 - 60			2.60	
61 - 100			4.15	
101 - 180			7.20	
181 - 300			12.30	
301 - 600			22.80	
601 - 1000			31.40	
1001 - 1750			31.40	
1751 - 3000			31.40	
3001 - 5000			31.40	
5001 - 9000			31.40	
9001 - 15,000			31.40	
Over 15,000				
Maximum area for computing other damages	(acres)	(acres)	(acres) 12,550	(acres)

^{1/} Based on 1945 watershed conditions and 1941 price levels.

EXPECTED FIRE DAMAGE FROM INCREASED RUN-OFF AND EROSION ^{1/}

Fire damage appraisal unit: Barrett Lake

Unit No. C-5

Area burned by zones (acres)	DAMAGE TO IMPROVEMENTS ON UPSTREAM SLOPES BURNED			
	Zone 1 (dollars per acre)	Zone 2 (dollars per acre)	Zone 4 (dollars per acre)	Zone 5 (dollars per acre)
0 - 20	0.15	0.90	0.00	0.00
21 - 40	0.60	4.25	0.00	0.10
41 - 60	1.00	5.90	0.00	0.15
61 - 100	1.55	5.90	0.00	0.25
101 - 180	2.00	5.90	0.00	0.45
181 - 300	2.00	5.90	0.00	0.60
301 - 600	2.00	5.90	0.00	0.60
601 - 1000	2.00	5.90	0.00	0.60
1001 - 1750	2.00		0.00	0.60
Over 1750	2.00		0.00	0.60
Maximum area for computing damage on slopes	(acres) 3,635	(acres) 813	(acres) 4,032	(acres) 6,055
OTHER DAMAGES				
Total area burned in all zones (acres)	Upstream canyon bottom (dollars per acre)	Downstream overflow area (dollars per acre)	Debris storage and/or removal (dollars per acre)	Water from stream diversions (dollars per acre)
0 - 20			0.95	
21 - 40			4.50	
41 - 60			7.70	
61 - 100			12.20	
101 - 180			21.20	
181 - 300			36.40	
301 - 600			46.40	
601 - 1000			46.40	
1001 - 1750			46.40	
1751 - 3000			46.40	
3001 - 5000			46.40	
5001 - 9000			46.40	
9001 - 15,000			46.40	
Over 15,000				
Maximum area for computing other damages	(acres)	(acres)	(acres) 14,535	(acres)

^{1/} Based on 1945 watershed conditions and 1941 price levels.

EXPECTED FIRE DAMAGE FROM INCREASED RUN-OFF AND EROSION ^{1/}

Fire damage appraisal unit: Skye Valley

Unit No. C-6

Area burned by zones (acres)	DAMAGE TO IMPROVEMENTS ON UPSTREAM SLOPES BURNED			
	Zone 1 (dollars per acre)	Zone 2 (dollars per acre)	Zone 4 (dollars per acre)	Zone 5 (dollars per acre)
0 - 20	0.05		0.40	0.00
21 - 40	0.20		1.95	0.10
41 - 60	0.40		3.35	0.15
61 - 100	0.60		5.20	0.25
101 - 180	1.05		9.10	0.45
181 - 300	1.40		12.00	0.75
301 - 600	1.40		12.00	0.95
601 - 1000	1.40		12.00	0.95
1001 - 1750	1.40			0.95
Over 1750				0.95
Maximum area for computing damage on slopes	(acres) 1,440	(acres)	(acres) 713	(acres) 3,693
OTHER DAMAGES				
Total area burned in all zones (acres)	Upstream canyon bottom (dollars per acre)	Downstream overflow area (dollars per acre)	Debris storage and/or removal (dollars per acre)	Water from stream diversions (dollars per acre)
0 - 20			0.50	
21 - 40			2.40	
41 - 60			4.15	
61 - 100			6.60	
101 - 180			11.40	
181 - 300			19.60	
301 - 600			25.00	
601 - 1000			25.00	
1001 - 1750			25.00	
1751 - 3000			25.00	
3001 - 5000			25.00	
Over 5000			25.00	
Maximum area for computing other damages	(acres)	(acres)	(acres) 5,846	(acres)

^{1/} Based on 1945 watershed conditions and 1941 price levels.

EXPECTED FIRE DAMAGE FROM INCREASED RUN-OFF AND EROSION ^{1/}

Fire damage appraisal unit: Pine Valley Creek

Unit No. C-7

Area, burned by zones (acres)	DAMAGE TO IMPROVEMENTS ON UPSTREAM SLOPES BURNED			
	Zone 1 (dollars per acre)	Zone 2 (dollars per acre)	Zone 4 (dollars per acre)	Zone 5 (dollars per acre)
0 - 20	0.05	0.90	0.25	0.00
21 - 40	0.35	4.25	1.05	0.10
41 - 60	0.55	7.30	1.80	0.20
61 - 100	0.90	11.60	2.85	0.30
101 - 180	1.55	14.60	3.60	0.55
181 - 300	2.65	14.60	3.60	0.90
301 - 600	4.85	14.60	3.60	1.65
601 - 1000	6.70	14.60	3.60	2.30
1001 - 1750	6.70	14.60	3.60	2.30
Over 1750	6.70	14.60	3.60	2.30
Maximum area for computing damage on slopes	(acres) 19,588	(acres) 5,742	(acres) 8,947	(acres) 16,282
OTHER DAMAGES				
Total area burned in all zones (acres)	Upstream canyon bottom (dollars per acre)	Downstream overflow area (dollars per acre)	Debris storage and/or removal (dollars per acre)	Water from stream diversions (dollars per acre)
0 - 20	0.00		0.60	
21 - 40	0.00		2.70	
41 - 60	0.00		4.60	
61 - 100	0.00		7.30	
101 - 180	0.00		12.60	
181 - 300	0.00		21.70	
301 - 600	0.00		40.20	
601 - 1000	0.00		55.50	
1001 - 1750	0.00		55.50	
1751 - 3000	0.05		55.50	
3001 - 5000	0.05		55.50	
5001 - 9000	0.15		55.50	
9001 - 15,000	0.30		55.50	
15,001 - 25,000	0.55		55.50	
25,001 - 50,000	1.10		55.50	
Over 50,000	1.55		55.50	
Maximum area for computing other damages	(acres) 50,559	(acres)	(acres) 50,559	(acres)

^{1/} Based on 1945 watershed conditions and 1941 price levels.

EXPECTED FIRE DAMAGE FROM INCREASED RUN-OFF AND EROSION ^{1/}

Fire damage appraisal unit: Wilson Creek

Unit No. C-8

Area burned by zones (acres)	DAMAGE TO IMPROVEMENTS ON UPSTREAM SLOPES BURNED			
	Zone 1 (dollars per acre)	Zone 2 (dollars per acre)	Zone 4 (dollars per acre)	Zone 5 (dollars per acre)
0 - 20	0.15	1.55	0.20	0.00
21 - 40	0.70	7.10	0.45	0.10
41 - 60	1.20	12.30	1.45	0.15
61 - 100	1.90	14.70	2.30	0.25
101 - 180	3.25	14.70	2.95	0.45
181 - 300	4.30	14.70	2.95	0.80
301 - 600	4.30	14.70	2.95	1.00
601 - 1000	4.30	14.70	2.95	1.00
1001 - 1750	4.30		2.95	1.00
Over 1750	4.30			1.00
Maximum area for computing damage on slopes	(acres) 1,939	(acres) 659	(acres) 1,005	(acres) 2,724
OTHER DAMAGES				
Total area burned in all zones (acres)	Upstream canyon bottom (dollars per acre)	Downstream overflow area (dollars per acre)	Debris storage and/or removal (dollars per acre)	Water from stream diversions (dollars per acre)
0 - 20			1.35	
21 - 40			6.30	
41 - 60			10.80	
61 - 100			17.10	
101 - 180			29.60	
181 - 300			51.00	
301 - 600			65.00	
601 - 1000			65.00	
1001 - 1750			65.00	
1751 - 3000			65.00	
3001 - 5000			65.00	
Over 5000			65.00	
Maximum area for computing other damages	(acres)	(acres)	(acres) 6,327	(acres)

^{1/} Based on 1945 watershed conditions and 1941 price levels.

EXPECTED FIRE DAMAGE FROM INCREASED RUN-OFF AND EROSION ^{1/}

Fire damage appraisal unit: Sweetwater River

Unit No. C-9

Area burned by zones	DAMAGE TO IMPROVEMENTS ON UPSTREAM SLOPES BURNED			
	Zone 1	Zone 2	Zone 4	Zone 5
(acres)	(dollars per acre)	(dollars per acre)	(dollars per acre)	(dollars per acre)
0 - 20	0.10	0.90	0.35	0.05
21 - 40	0.50	4.15	1.60	0.20
41 - 60	0.80	7.10	2.70	0.40
61 - 100	1.30	11.20	4.30	0.60
101 - 180	2.25	14.20	7.50	1.05
181 - 300	3.85	14.20	12.80	1.80
301 - 600	4.95	14.20	16.30	3.35
601 - 1000	4.95	14.20	16.30	4.65
1001 - 1750	4.95	14.20	16.30	4.65
Over 1750	4.95	14.20	16.30	4.65
Maximum area for computing damage on slopes	(acres) 16,556	(acres) 7,119	(acres) 14,102	(acres) 21,189
OTHER DAMAGES				
Total area burned in all zones	Upstream canyon bottom	Downstream overflow area	Debris storage and/or removal	Water from stream diversions
(acres)	(dollars per acre)	(dollars per acre)	(dollars per acre)	(dollars per acre)
0 - 20	0.00	0.00	0.90	
21 - 40	0.00	0.00	4.05	
41 - 60	0.00	0.00	7.00	
61 - 100	0.00	0.00	11.10	
101 - 180	0.00	0.00	19.20	
181 - 300	0.00	0.00	33.00	
301 - 600	0.00	0.00	61.00	
601 - 1000	0.00	0.00	84.00	
1001 - 1750	0.00	0.00	84.00	
1751 - 3000	0.05	0.00	84.00	
3001 - 5000	0.10	0.00	84.00	
5001 - 9000	0.15	0.00	84.00	
9001 - 15,000	0.35	0.00	84.00	
15,001 - 25,000	0.70	0.00	84.00	
25,001 - 50,000	1.40	0.05	84.00	
Over 50,000	2.30	0.05	84.00	
Maximum area for computing other damages	(acres) 58,966	(acres) 58,966	(acres) 58,966	(acres)

^{1/} Based on 1945 watershed conditions and 1941 price levels.

EXPECTED FIRE DAMAGE FROM INCREASED RUN-OFF AND EROSION ^{1/}

Fire damage appraisal unit: Conejos Creek

Unit No. C-10

Area burned by zones (acres)	DAMAGE TO IMPROVEMENTS ON UPSTREAM SLOPES BURNED			
	Zone 1 (dollars per acre)	Zone 2 (dollars per acre)	Zone 4 (dollars per acre)	Zone 5 (dollars per acre)
0 - 20	0.00	0.05	0.05	0.00
21 - 40	0.05	0.15	0.25	0.05
41 - 60	0.10	0.25	0.45	0.05
61 - 100	0.15	0.40	0.70	0.10
101 - 180	0.20	0.50	1.20	0.20
181 - 300	0.40	0.50	1.55	0.35
301 - 600	0.70	0.50	1.55	0.65
601 - 1000	0.95	0.50	1.55	0.85
1001 - 1750	0.95	0.50	1.55	0.85
Over 1750	0.95	0.50	1.55	0.85
Maximum area for computing damage on slopes	(acres) 11,507	(acres) 3,750	(acres) 7,872	(acres) 10,912
OTHER DAMAGES				
Total area burned in all zones (acres)	Upstream canyon bottom (dollars per acre)	Downstream overflow area (dollars per acre)	Debris storage and/or removal (dollars per acre)	Water from stream diversions (dollars per acre)
0 - 20			0.80	
21 - 40			3.65	
41 - 60			6.30	
61 - 100			9.90	
101 - 180			17.20	
181 - 300			29.60	
301 - 600			54.50	
601 - 1000			75.50	
1001 - 1750			75.50	
1751 - 3000			75.50	
3001 - 5000			75.50	
5001 - 9000			75.50	
9001 - 15,000			75.50	
15,001 - 25,000			75.50	
25,001 - 50,000			75.50	
Over 50,000				
Maximum area for computing other damages	(acres)	(acres)	(acres) 34,042	(acres)

^{1/} Based on 1945 watershed conditions and 1941 price levels.

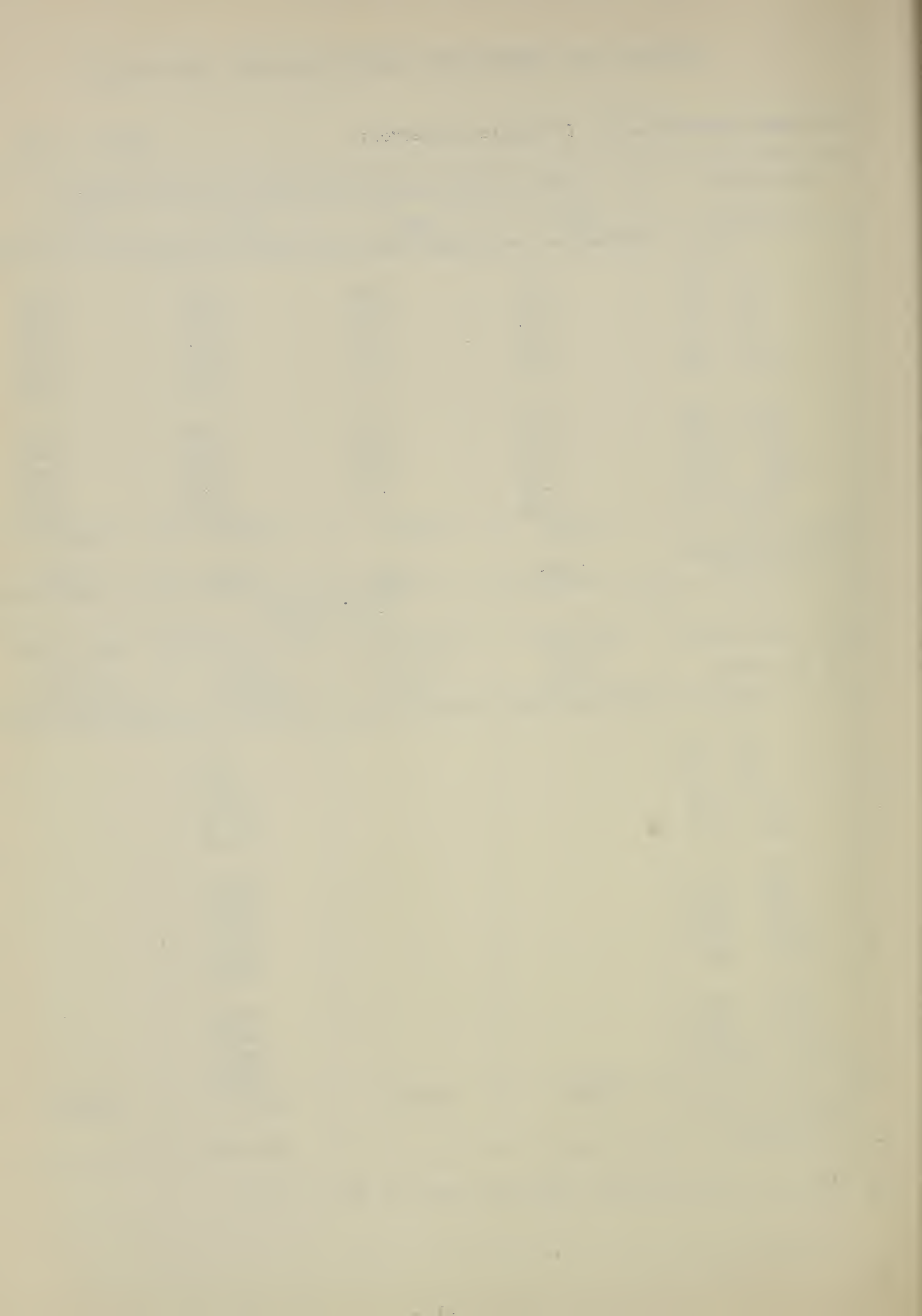
EXPECTED FIRE DAMAGE FROM INCREASED RUN-OFF AND EROSION ^{1/}

Fire damage appraisal unit: El Capitan Reservoir

Unit No. C-11

Area burned by zones (acres)	DAMAGE TO IMPROVEMENTS ON UPSTREAM SLOPES BURNED			
	Zone 1 (dollars per acre)	Zone 2 (dollars per acre)	Zone 4 (dollars per acre)	Zone 5 (dollars per acre)
0 - 20	0.00	0.00	0.05	0.00
21 - 40	0.00	0.05	0.10	0.05
41 - 60	0.05	0.10	0.20	0.05
61 - 100	0.05	0.10	0.30	0.10
101 - 180	0.10	0.10	0.40	0.15
181 - 300	0.20	0.10	0.40	0.30
301 - 600	0.35	0.10	0.40	0.50
601 - 1000	0.45	0.10	0.40	0.70
1001 - 1750	0.45	0.10	0.40	0.70
Over 1750	0.45		0.40	0.70
Maximum area for computing damage on slopes	(acres) 2,208	(acres) 1,024	(acres) 5,996	(acres) 5,927
OTHER DAMAGES				
Total area burned in all zones (acres)	Upstream canyon bottom (dollars per acre)	Downstream overflow area (dollars per acre)	Debris storage and/or removal (dollars per acre)	Water from stream diversions (dollars per acre)
0 - 20			1.70	
21 - 40			7.90	
41 - 60			13.70	
61 - 100			21.60	
101 - 180			37.40	
181 - 300			64.00	
301 - 600			82.00	
601 - 1000			82.00	
1001 - 1750			82.00	
1751 - 3000			82.00	
3001 - 5000			82.00	
5001 - 9000			82.00	
9001 - 15,000			82.00	
Over 15,000			82.00	
Maximum area for computing other damages	(acres)	(acres)	(acres) 15,155	(acres)

^{1/} Based on 1945 watershed conditions and 1941 price levels.



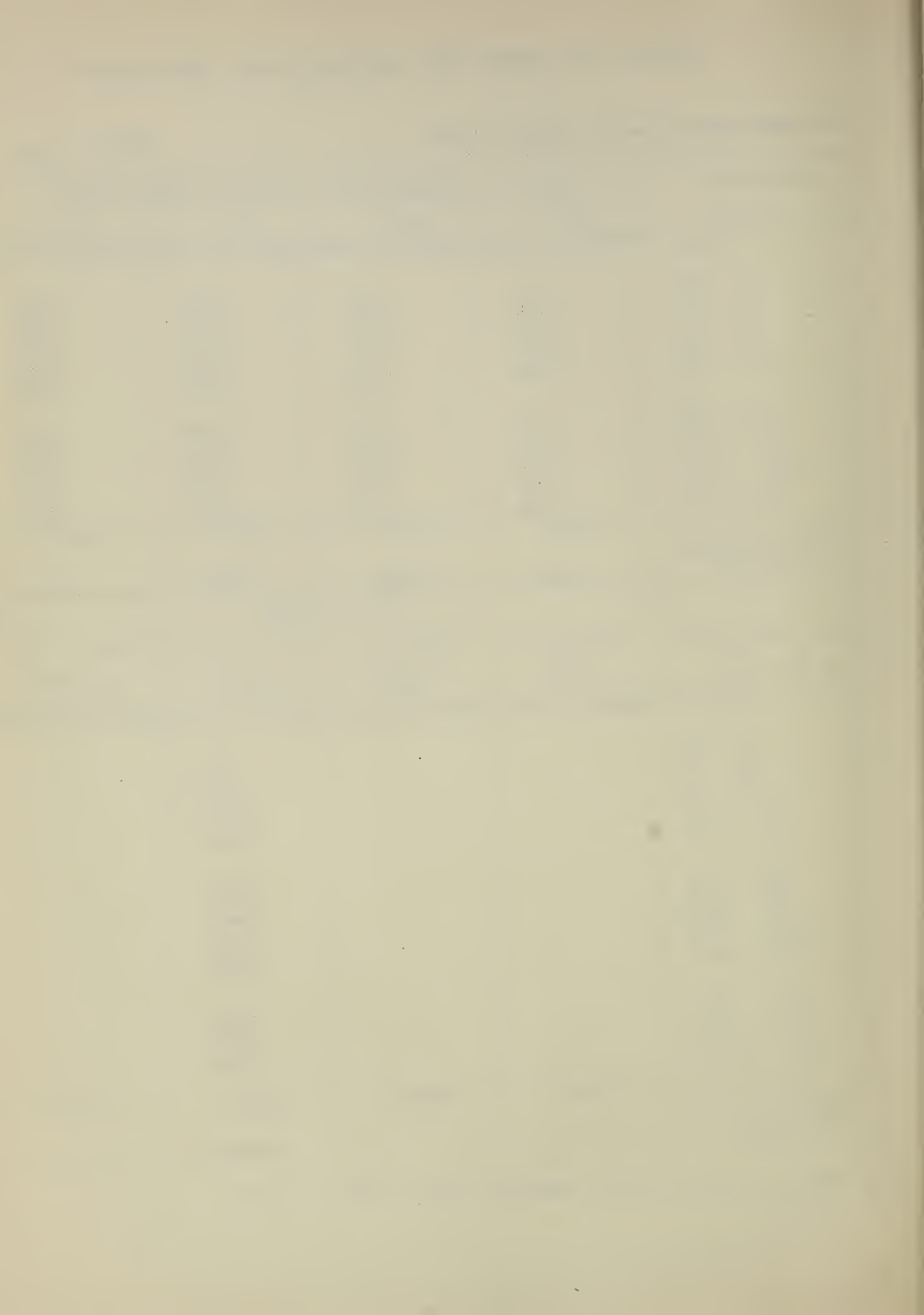
EXPECTED FIRE DAMAGE FROM INCREASED RUN-OFF AND EROSION ^{1/}

Fire damage appraisal unit: Boulder Creek

Unit No. C-12

Area burned by zones (acres)	DAMAGE TO IMPROVEMENTS ON UPSTREAM SLOPES BURNED			
	Zone 1 (dollars per acre)	Zone 2 (dollars per acre)	Zone 4 (dollars per acre)	Zone 5 (dollars per acre)
0 - 20	0.05	0.10	0.05	0.05
21 - 40	0.15	0.45	0.25	0.30
41 - 60	0.25	0.75	0.40	0.50
61 - 100	0.35	0.90	0.65	0.80
101 - 180	0.65	0.90	0.80	1.40
181 - 300	1.10	0.90	0.80	1.85
301 - 600	1.40	0.90	0.80	1.85
601 - 1000	1.40	0.90	0.80	1.85
1001 - 1750	1.40	0.90	0.80	1.85
Over 1750	1.40	0.90	0.80	1.85
Maximum area for computing damage on slopes	(acres) 4,893	(acres) 2,099	(acres) 2,752	(acres) 2,940
OTHER DAMAGES				
Total area burned in all zones (acres)	Upstream canyon bottom (dollars per acre)	Downstream overflow area (dollars per acre)	Debris storage and/or removal (dollars per acre)	Water from stream diversions (dollars per acre)
0 - 20			2.00	
21 - 40			9.30	
41 - 60			16.00	
61 - 100			25.30	
101 - 180			43.90	
181 - 300			75.50	
301 - 600			75.50	
601 - 1000			75.50	
1001 - 1750			75.50	
1751 - 3000			75.50	
3001 - 5000			75.50	
5001 - 9000			75.50	
9001 - 15,000			75.50	
Over 15,000				
Maximum area for computing other damages	(acres)	(acres)	(acres) 12,684	(acres)

^{1/} Based on 1945 watershed conditions and 1941 price levels.



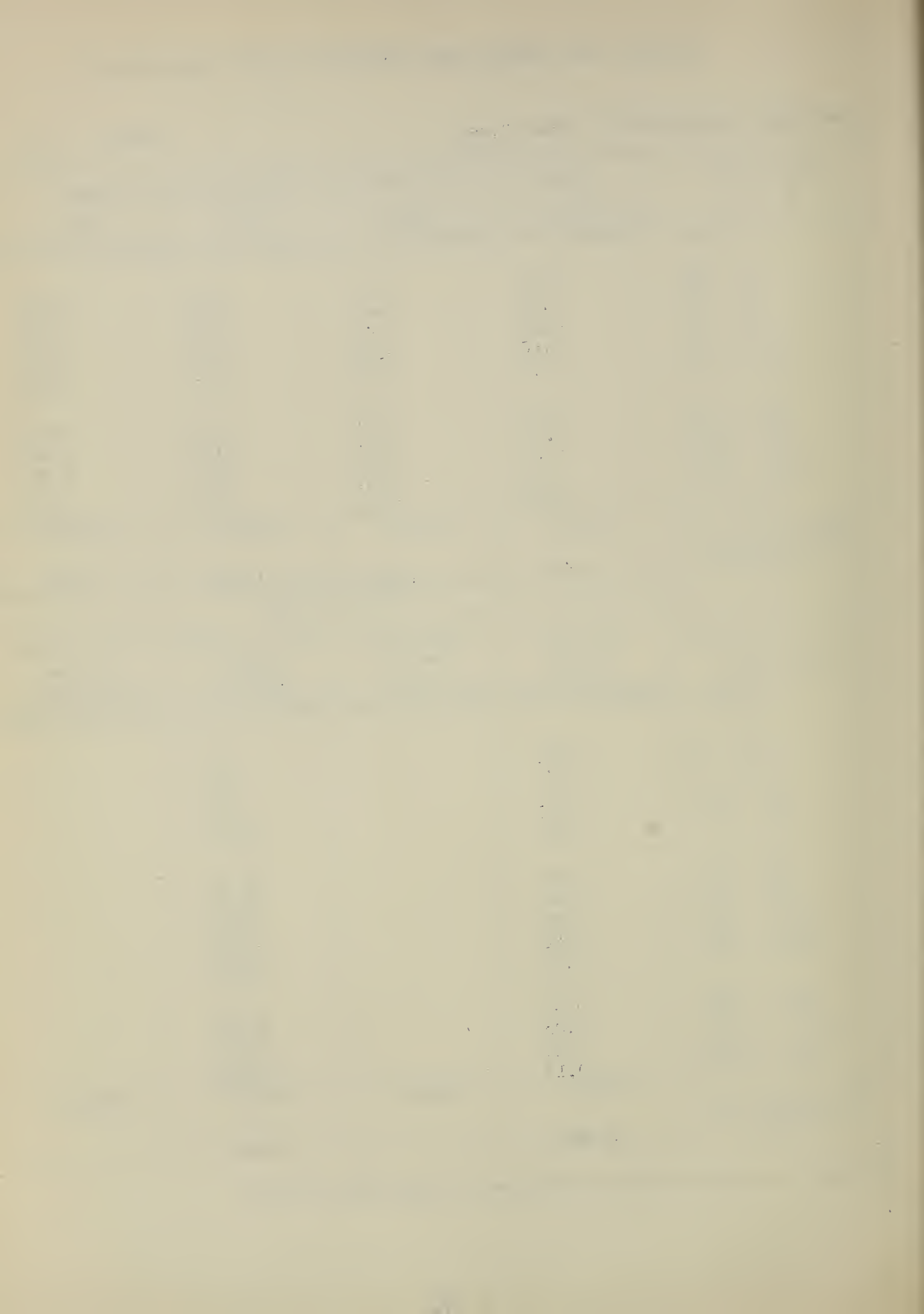
EXPECTED FIRE DAMAGE FROM INCREASED RUN-OFF AND EROSION ^{1/}

Fire damage appraisal unit: Cedar Creek

Unit No. C-13

Area burned by zones (acres)	DAMAGE TO IMPROVEMENTS ON UPSTREAM SLOPES BURNED			
	Zone 1 (dollars per acre)	Zone 2 (dollars per acre)	Zone 4 (dollars per acre)	Zone 5 (dollars per acre)
0 - 20	0.05	0.05	0.20	0.05
21 - 40	0.30	0.40	0.85	0.10
41 - 60	0.50	0.65	1.45	0.20
61 - 100	0.80	0.80	2.25	0.30
101 - 180	1.40	0.80	2.85	0.55
181 - 300	2.40	0.80	2.85	0.95
301 - 600	4.40	0.80	2.85	1.75
601 - 1000	6.10	0.80	2.85	2.45
1001 - 1750	6.10	0.80	2.85	2.45
Over 1750	6.10	0.80	2.85	2.45
Maximum area for computing damage on slopes	(acres) 6,406	(acres) 2,291	(acres) 2,342	(acres) 5,453
OTHER DAMAGES				
Total area burned in all zones (acres)	Upstream canyon bottom (dollars per acre)	Downstream overflow area (dollars per acre)	Debris storage and/or removal (dollars per acre)	Water from stream diversions (dollars per acre)
0 - 20	0.00		0.95	
21 - 40	0.00		4.35	
41 - 60	0.00		7.50	
61 - 100	0.00		11.80	
101 - 180	0.00		20.50	
181 - 300	0.00		35.20	
301 - 600	0.00		65.00	
601 - 1000	0.00		90.00	
1001 - 1750	0.00		90.00	
1751 - 3000	0.00		90.00	
3001 - 5000	0.05		90.00	
5001 - 9000	0.05		90.00	
9001 - 15,000	0.10		90.00	
Over 15,000	0.15		90.00	
Maximum area for computing other damages	(acres) 16,493	(acres)	(acres) 16,493	(acres)

^{1/} Based on 1945 watershed conditions and 1941 price levels.



EXPECTED FIRE DAMAGE FROM INCREASED RUN-OFF AND EROSION ^{1/}

Fire damage appraisal unit: San Diego River

Unit No. C-14

Area burned by zones (acres)	DAMAGE TO IMPROVEMENTS ON UPSTREAM SLOPES BURNED			
	Zone 1 (dollars per acre)	Zone 2 (dollars per acre)	Zone 4 (dollars per acre)	Zone 5 (dollars per acre)
0 - 20	0.20	0.20	0.05	0.05
21 - 40	0.80	0.80	0.15	0.20
41 - 60	1.40	1.40	0.25	0.35
61 - 100	2.25	1.70	0.30	0.60
101 - 180	2.85	1.70	0.30	1.00
181 - 300	2.85	1.70	0.30	1.75
301 - 600	2.85	1.70	0.30	2.20
601 - 1000	2.85	1.70	0.30	2.20
1001 - 1750	2.85	1.70	0.30	2.20
Over 1750	2.85	1.70	0.30	2.20
Maximum area for computing damage on slopes	(acres) 5,773	(acres) 2,522	(acres) 3,840	(acres) 12,764
OTHER DAMAGES				
Total area burned in all zones (acres)	Upstream canyon bottom (dollars per acre)	Downstream overflow area (dollars per acre)	Debris storage and/or removal (dollars per acre)	Water from stream diversions (dollars per acre)
0 - 20			1.45	
21 - 40			6.70	
41 - 60			11.60	
61 - 100			18.30	
101 - 180			31.80	
181 - 300			54.50	
301 - 600			69.50	
601 - 1000			69.50	
1001 - 1750			69.50	
1751 - 3000			69.50	
3001 - 5000			69.50	
5001 - 9000			69.50	
9001 - 15,000			69.50	
Over 15,000			69.50	
Maximum area for computing other damages	(acres)	(acres)	(acres) 24,899	(acres)

^{1/} Based on 1945 watershed conditions and 1941 price levels.

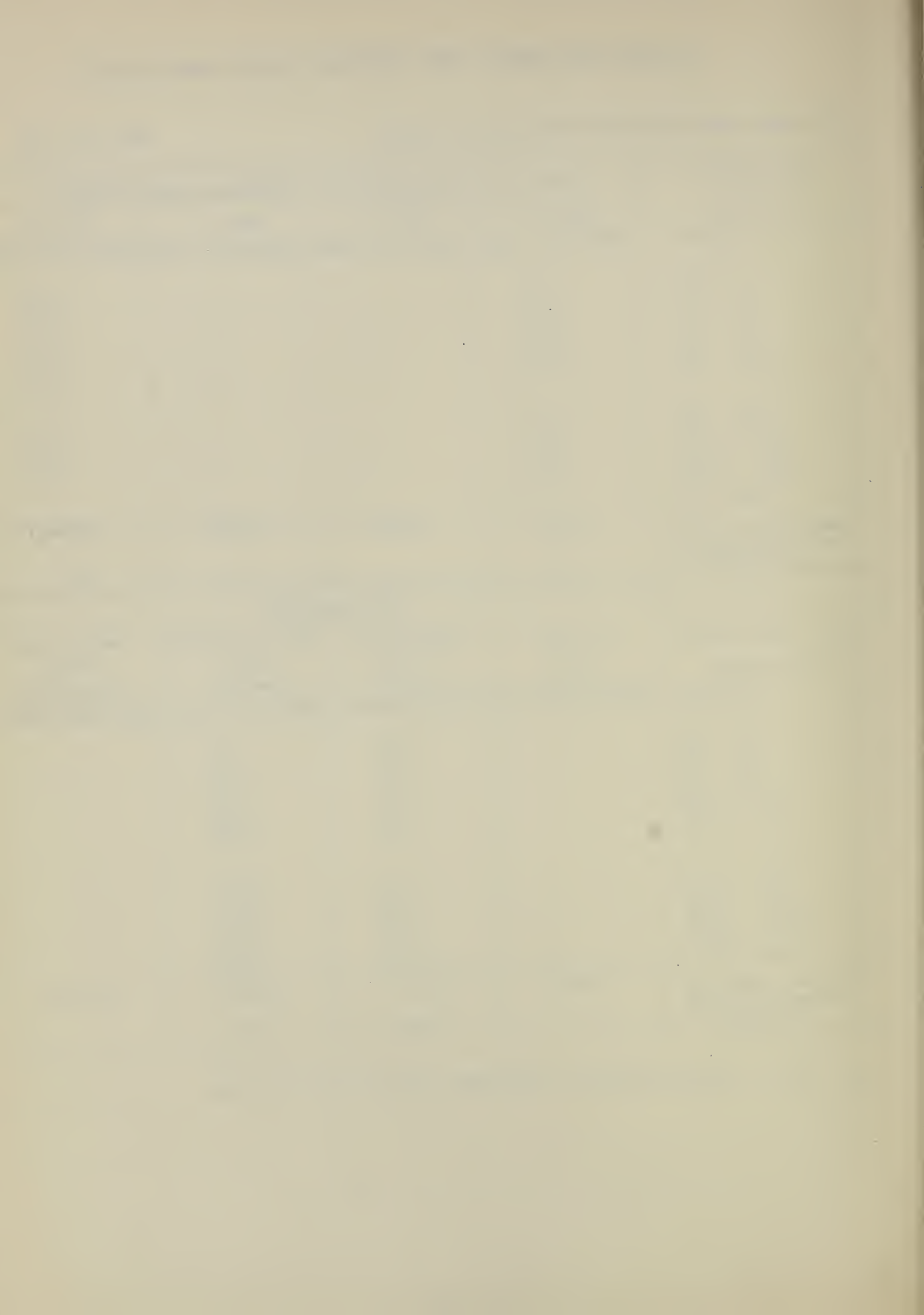
EXPECTED FIRE DAMAGE FROM INCREASED RUN-OFF AND EROSION ^{1/}

Fire damage appraisal unit: Featherstone Canyon

Unit No. C-15

Area burned by zones	DAMAGE TO IMPROVEMENTS ON UPSTREAM SLOPES BURNED			
	Zone 1	Zone 2	Zone 4	Zone 5
(acres)	(dollars per acre)	(dollars per acre)	(dollars per acre)	(dollars per acre)
0 - 20	0.00			0.05
21 - 40	0.00			0.30
41 - 60	0.00			0.55
61 - 100	0.05			0.65
101 - 180	0.05			0.65
181 - 300	0.10			0.65
301 - 600	0.20			0.65
601 - 1000	0.30			0.65
1001 - 1750	0.30			
Over 1750				
Maximum area for computing damage on slopes	(acres) 1,225	(acres)	(acres)	(acres) 794
OTHER DAMAGES				
Total area burned in all zones	Upstream canyon bottom	Downstream overflow area	Debris storage and/or removal	Water from stream diversions
(acres)	(dollars per acre)	(dollars per acre)	(dollars per acre)	(dollars per acre)
0 - 20		0.00	0.80	
21 - 40		0.00	3.65	
41 - 60		0.00	6.30	
61 - 100		0.05	9.90	
101 - 180		0.05	17.20	
181 - 300		0.10	29.60	
301 - 600		0.20	54.50	
601 - 1000		0.35	75.50	
1001 - 1750		0.60	75.50	
Over 1750		0.90	75.50	
Maximum area for computing other damages	(acres)	(acres) 2,019	(acres) 2,019	(acres)

^{1/} Based on 1945 watershed conditions and 1941 price levels.



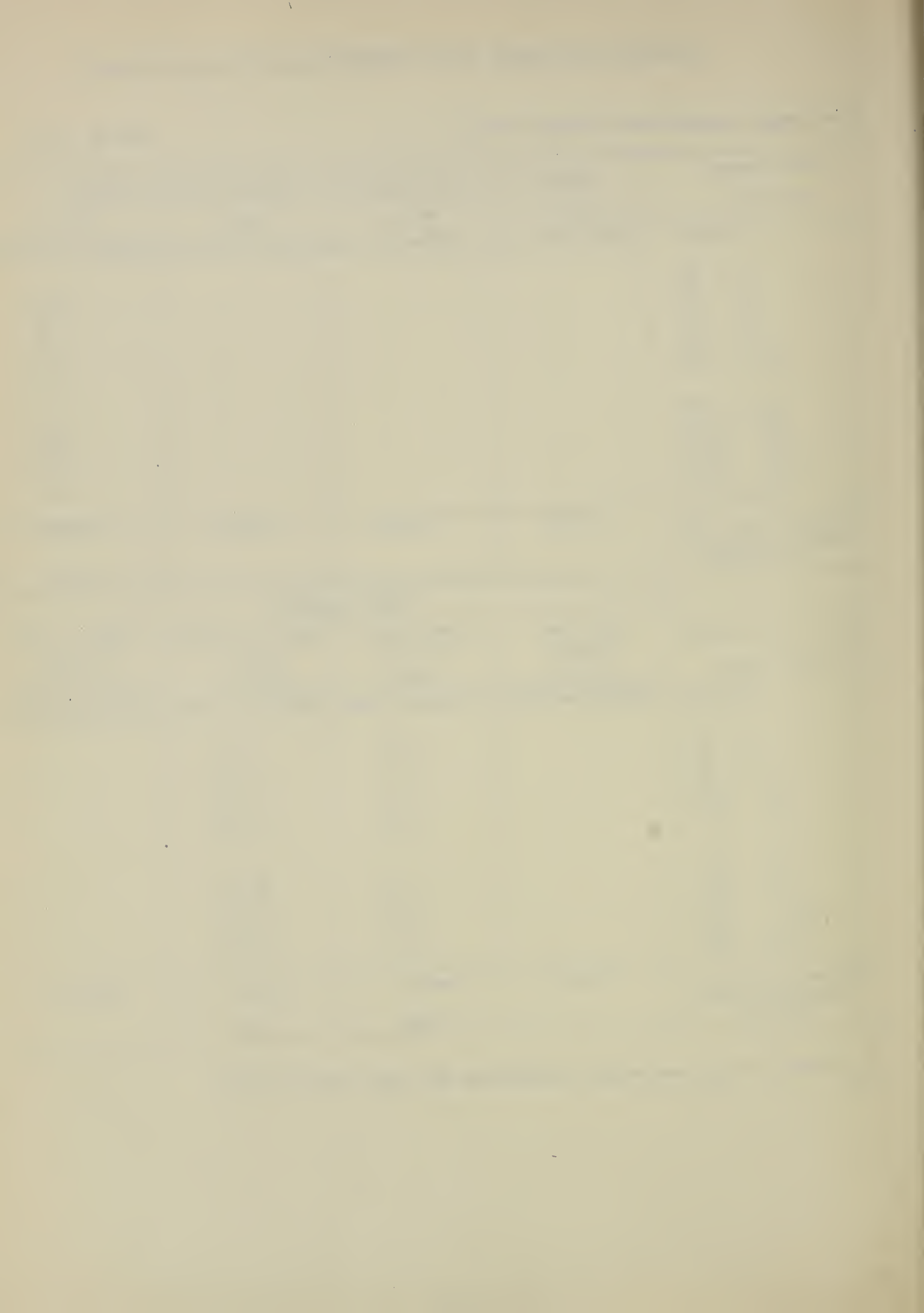
EXPECTED FIRE DAMAGE FROM INCREASED RUN-OFF AND EROSION ^{1/}

Fire damage appraisal unit: Wright Canyon

Unit No. C-16

Area burned by zones	DAMAGE TO IMPROVEMENTS ON UPSTREAM SLOPES BURNED			
	Zone 1	Zone 2	Zone 4	Zone 5
(acres)	(dollars per acre)	(dollars per acre)	(dollars per acre)	(dollars per acre)
0 - 20				0.10
21 - 40				0.35
41 - 60				0.65
61 - 100				1.00
101 - 180				1.70
181 - 300				2.25
301 - 600				2.25
601 - 1000				2.25
1001 - 1750				2.25
Over 1750				
Maximum area for computing damage on slopes	(acres)	(acres)	(acres)	(acres)
				1,236
OTHER DAMAGES				
Total area burned in all zones	Upstream canyon bottom	Downstream overflow area	Debris storage and/or removal	Water from stream diversions
(acres)	(dollars per acre)	(dollars per acre)	(dollars per acre)	(dollars per acre)
0 - 20		0.00	2.15	
21 - 40		0.00	10.00	
41 - 60		0.00	17.20	
61 - 100		0.05	27.10	
101 - 180		0.05	47.00	
181 - 300		0.10	62.00	
301 - 600		0.15	62.00	
601 - 1000		0.30	62.00	
1001 - 1750		0.50	62.00	
Over 1750				
Maximum area for computing other damages	(acres)	(acres)	(acres)	(acres)
		1,236	1,236	

^{1/} Based on 1945 watershed conditions and 1941 price levels.



EXPECTED FIRE DAMAGE FROM INCREASED RUN-OFF AND EROSION ^{1/}

Fire damage appraisal unit: Mt. Gower

Unit No. C-17

Area burned by zones (acres)	DAMAGE TO IMPROVEMENTS ON UPSTREAM SLOPES BURNED			
	Zone 1 (dollars per acre)	Zone 2 (dollars per acre)	Zone 4 (dollars per acre)	Zone 5 (dollars per acre)
0 - 20	0.00			0.05
21 - 40	0.10			0.20
41 - 60	0.15			0.40
61 - 100	0.20			0.60
101 - 180	0.35			0.75
181 - 300	0.45			0.75
301 - 600	0.45			0.75
601 - 1000	0.45			0.75
1001 - 1750	0.45			0.75
Over 1750	0.45			0.75
Maximum area for computing damage on slopes	(acres) 2,487	(acres)	(acres)	(acres) 3,589
OTHER DAMAGES				
Total area burned in all zones (acres)	Upstream canyon bottom (dollars per acre)	Downstream overflow area (dollars per acre)	Debris storage and/or removal (dollars per acre)	Water from stream diversions (dollars per acre)
0 - 20		0.00	1.60	
21 - 40		0.00	7.50	
41 - 60		0.00	12.90	
61 - 100		0.00	20.40	
101 - 180		0.00	35.30	
181 - 300		0.00	46.40	
301 - 600		0.00	46.40	
601 - 1000		0.05	46.40	
1001 - 1750		0.05	46.40	
1751 - 3000		0.10	46.40	
3001 - 5000		0.20	46.40	
Over 5000		0.30	46.40	
Maximum area for computing other damages	(acres)	(acres) 6,076	(acres) 6,076	(acres)

^{1/} Based on 1945 watershed conditions and 1941 price levels.

EXPECTED FIRE DAMAGE FROM INCREASED RUN-OFF AND EROSION ^{1/}

Fire damage appraisal unit: Roden Canyon

Unit No. C-18

Area burned by zones (acres)	DAMAGE TO IMPROVEMENTS ON UPSTREAM SLOPES BURNED			
	Zone 1 (dollars per acre)	Zone 2 (dollars per acre)	Zone 4 (dollars per acre)	Zone 5 (dollars per acre)
0 - 20	0.05	0.25	0.15	0.05
21 - 40	0.15	1.15	0.70	0.15
41 - 60	0.20	1.95	1.15	0.30
61 - 100	0.35	3.10	1.85	0.45
101 - 180	0.60	3.90	2.35	0.80
181 - 300	1.05	3.90	2.35	1.05
301 - 600	1.35	3.90	2.35	1.05
601 - 1000	1.35	3.90	2.35	1.05
1001 - 1750	1.35	3.90	2.35	1.05
Over 1750	1.35	3.90	2.35	1.05
Maximum area for computing damage on slopes	(acres) 3,168	(acres) 2,029	(acres) 4,211	(acres) 3,859
OTHER DAMAGES				
Total area burned in all zones (acres)	Upstream canyon bottom (dollars per acre)	Downstream overflow area (dollars per acre)	Debris storage and/or removal (dollars per acre)	Water from stream diversions (dollars per acre)
0 - 20		0.00	0.50	
21 - 40		0.00	2.20	
41 - 60		0.00	3.80	
61 - 100		0.00	6.00	
101 - 180		0.05	10.40	
181 - 300		0.05	17.80	
301 - 600		0.10	22.70	
601 - 1000		0.15	22.70	
1001 - 1750		0.25	22.70	
1751 - 3000		0.45	22.70	
3001 - 5000		0.75	22.70	
5001 - 9000		1.30	22.70	
9001 - 15,000		2.40	22.70	
Over 15,000				
Maximum area for computing other damages	(acres)	(acres) 13,267	(acres) 13,267	(acres)

^{1/} Based on 1945 watershed conditions and 1941 price levels.

EXPECTED FIRE DAMAGE FROM INCREASED RUN-OFF AND EROSION ^{1/}

Fire damage appraisal unit: Black Canyon

Unit No. C-19

Area burned by zones (acres)	DAMAGE TO IMPROVEMENTS ON UPSTREAM SLOPES BURNED			
	Zone 1 (dollars per acre)	Zone 2 (dollars per acre)	Zone 4 (dollars per acre)	Zone 5 (dollars per acre)
0 - 20			0.30	0.05
21 - 40			1.40	0.35
41 - 60			2.40	0.55
61 - 100			2.85	0.90
101 - 180			2.85	1.15
181 - 300			2.85	1.15
301 - 600			2.85	1.15
601 - 1000			2.85	1.15
1001 - 1750			2.85	1.15
Over 1750			2.85	1.15
Maximum area for computing damage on slopes	(acres)	(acres)	(acres) 3,149	(acres) 6,607
OTHER DAMAGES				
Total area burned in all zones (acres)	Upstream canyon bottom (dollars per acre)	Downstream overflow area (dollars per acre)	Debris storage and/or removal (dollars per acre)	Water from stream diversions (dollars per acre)
0 - 20	0.00	0.00	0.90	
21 - 40	0.00	0.00	4.15	
41 - 60	0.00	0.00	7.10	
61 - 100	0.00	0.00	11.30	
101 - 180	0.00	0.05	19.50	
181 - 300	0.00	0.05	25.60	
301 - 600	0.00	0.10	25.60	
601 - 1000	0.00	0.20	25.60	
1001 - 1750	0.00	0.30	25.60	
1751 - 3000	0.00	0.55	25.60	
3001 - 5000	0.00	0.90	25.60	
5001 - 9000	0.05	1.60	25.60	
9001 - 15,000	0.05	2.30	25.60	
Over 15,000				
Maximum area for computing other damages	(acres) 9,756	(acres) 9,756	(acres) 9,756	(acres)

^{1/} Based on 1945 watershed conditions and 1941 price levels.

EXPECTED FIRE DAMAGE FROM INCREASED RUN-OFF AND EROSION ^{1/}

Fire damage appraisal unit: Temescal Creek

Unit No. C-20

Area burned by zones (acres)	DAMAGE TO IMPROVEMENTS ON UPSTREAM SLOPES BURNED			
	Zone 1 (dollars per acre)	Zone 2 (dollars per acre)	Zone 4 (dollars per acre)	Zone 5 (dollars per acre)
0 - 20			0.10	0.00
21 - 40			0.45	0.10
41 - 60			0.75	0.15
61 - 100			1.20	0.20
101 - 180			1.20	0.40
181 - 300			1.20	0.65
301 - 600			1.20	0.65
601 - 1000			1.20	0.65
1001 - 1750			1.20	0.65
Over 1750			1.20	0.65
Maximum area for computing damage on slopes	(acres)	(acres)	(acres) 5,843	(acres) 12,954
OTHER DAMAGES				
Total area burned in all zones (acres)	Upstream canyon bottom (dollars per acre)	Downstream overflow area (dollars per acre)	Debris storage and/or removal (dollars per acre)	Water from stream diversions (dollars per acre)
0 - 20	0.00	0.00	0.25	
21 - 40	0.00	0.00	1.05	
41 - 60	0.00	0.00	1.85	
61 - 100	0.00	0.00	2.90	
101 - 180	0.00	0.00	5.00	
181 - 300	0.00	0.05	8.60	
301 - 600	0.00	0.05	16.00	
601 - 1000	0.00	0.10	22.00	
1001 - 1750	0.05	0.20	22.00	
1751 - 3000	0.05	0.30	22.00	
3001 - 5000	0.10	0.50	22.00	
5001 - 9000	0.15	0.90	22.00	
9001 - 15,000	0.25	1.55	22.00	
Over 15,000	0.40	2.45	22.00	
Maximum area for computing other damages	(acres) 18,797	(acres) 18,797	(acres) 18,797	(acres)

^{1/} Based on 1945 watershed conditions and 1941 price levels.

EXPECTED FIRE DAMAGE FROM INCREASED RUN-OFF AND EROSION ^{1/}

Fire damage appraisal unit: Agua Caliente Creek

Unit No. C-21

Area burned by zones (acres)	DAMAGE TO IMPROVEMENTS ON UPSTREAM SLOPES BURNED			
	Zone 1 (dollars per acre)	Zone 2 (dollars per acre)	Zone 4 (dollars per acre)	Zone 5 (dollars per acre)
0 - 20			0.00	0.00
21 - 40			0.10	0.00
41 - 60			0.20	0.05
61 - 100			0.30	0.05
101 - 180			0.55	0.10
181 - 300			0.95	0.15
301 - 600			1.70	0.25
601 - 1000			3.10	0.35
1001 - 1750			3.95	0.35
Over 1750			3.95	0.35
Maximum area for computing damage on slopes	(acres)	(acres)	(acres) 10,157	(acres) 16,459
OTHER DAMAGES				
Total area burned in all zones (acres)	Upstream canyon bottom (dollars per acre)	Downstream overflow area (dollars per acre)	Debris storage and/or removal (dollars per acre)	Water from stream diversions (dollars per acre)
0 - 20			0.00	
21 - 40			0.00	
41 - 60			0.00	
61 - 100			0.00	
101 - 180			0.05	
181 - 300			0.05	
301 - 600			0.10	
601 - 1000			0.10	
1001 - 1750			0.10	
1751 - 3000			0.10	
3001 - 5000			0.10	
5001 - 9000			0.10	
9001 - 15,000			0.10	
15,001 - 25,000			0.10	
25,001 - 50,000			0.10	
Over 50,000				
Maximum area for computing other damages	(acres)	(acres)	(acres) 26,706	(acres)

^{1/} Based on 1945 watershed conditions and 1941 price levels.

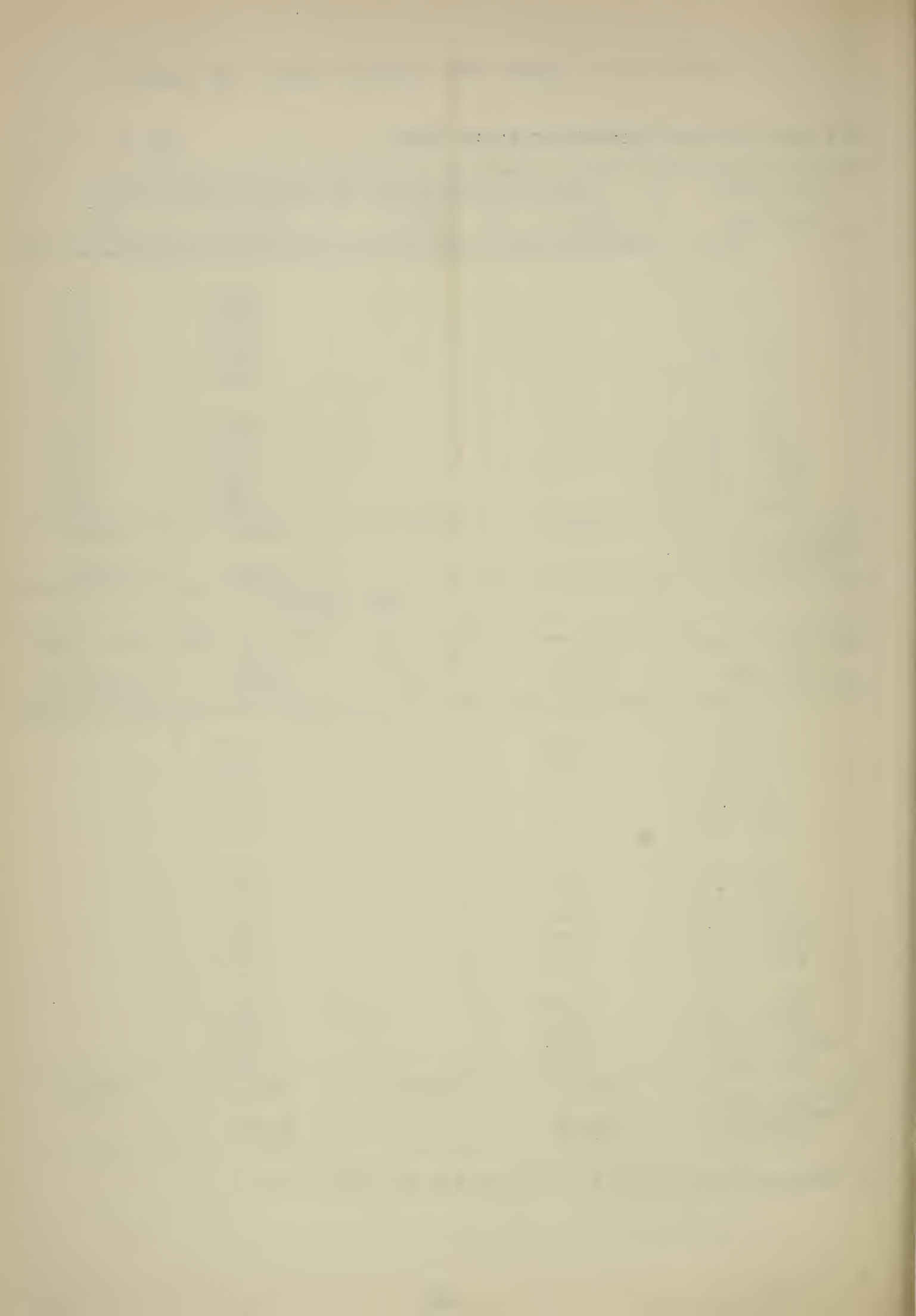
EXPECTED FIRE DAMAGE FROM INCREASED RUN-OFF AND EROSION ^{1/}

Fire damage appraisal unit: Puerta La Cruz Creek

Unit No. C-22

Area burned by zones	DAMAGE TO IMPROVEMENTS ON UPSTREAM SLOPES BURNED			
	Zone 1	Zone 2	Zone 4	Zone 5
(acres)	(dollars per acre)	(dollars per acre)	(dollars per acre)	(dollars per acre)
0 - 20			0.00	0.00
21 - 40			0.05	0.00
41 - 60			0.10	0.00
61 - 100			0.15	0.00
101 - 180			0.20	0.05
181 - 300			0.35	0.05
301 - 600			0.70	0.10
601 - 1000			0.95	0.15
1001 - 1750			0.95	0.15
Over 1750			0.95	0.15
Maximum area for computing damage on slopes	(acres)	(acres)	(acres)	(acres)
			6,806	11,813
OTHER DAMAGES				
Total area burned in all zones	Upstream canyon bottom	Downstream overflow area	Debris storage and/or removal	Water from stream diversions
(acres)	(dollars per acre)	(dollars per acre)	(dollars per acre)	(dollars per acre)
0 - 20	0.00		0.00	
21 - 40	0.00		0.00	
41 - 60	0.00		0.00	
61 - 100	0.00		0.00	
101 - 180	0.00		0.05	
181 - 300	0.00		0.05	
301 - 600	0.00		0.10	
601 - 1000	0.00		0.15	
1001 - 1750	0.00		0.15	
1751 - 3000	0.00		0.15	
3001 - 5000	0.00		0.15	
5001 - 9000	0.00		0.15	
9001 - 15,000	0.00		0.15	
Over 15,000	0.00		0.15	
Maximum area for computing other damages	(acres)	(acres)	(acres)	(acres)
	18,619		18,619	

^{1/} Based on 1945 watershed conditions and 1941 price levels.



EXPECTED FIRE DAMAGE FROM INCREASED RUN-OFF AND EROSION ^{1/}

Fire damage appraisal unit: West Fork San Luis Rey River

Unit No. C-23

Area burned by zones (acres)	DAMAGE TO IMPROVEMENTS ON UPSTREAM SLOPES BURNED			
	Zone 1 (dollars per acre)	Zone 2 (dollars per acre)	Zone 4 (dollars per acre)	Zone 5 (dollars per acre)
0 - 20	0.05		0.00	0.15
21 - 40	0.15		0.10	0.65
41 - 60	0.25		0.15	1.10
61 - 100	0.40		0.20	1.75
101 - 180	0.70		0.40	3.05
181 - 300	1.25		0.50	5.20
301 - 600	1.60		0.50	6.60
601 - 1000	1.60		0.50	6.60
1001 - 1750	1.60		0.50	6.60
Over 1750	1.60		0.50	6.60
Maximum area for computing damage on slopes	(acres) 5,891	(acres)	(acres) 6,746	(acres) 6,943
OTHER DAMAGES				
Total area burned in all zones (acres)	Upstream canyon bottom (dollars per acre)	Downstream overflow area (dollars per acre)	Debris storage and/or removal (dollars per acre)	Water from stream diversions (dollars per acre)
0 - 20	0.00	0.00	0.00	
21 - 40	0.00	0.00	0.00	
41 - 60	0.00	0.00	0.00	
61 - 100	0.00	0.00	0.00	
101 - 180	0.00	0.00	0.00	
181 - 300	0.00	0.00	0.00	
301 - 600	0.00	0.00	0.00	
601 - 1000	0.00	0.00	0.00	
1001 - 1750	0.00	0.00	0.00	
1751 - 3000	0.00	0.00	0.00	
3001 - 5000	0.00	0.00	0.00	
5001 - 9000	0.00	0.00	0.00	
9001 - 15,000	0.00	0.00	0.00	
Over 15,000	0.05	0.00	0.00	
Maximum area for computing other damages	(acres) 19,580	(acres) 19,580	(acres) 19,580	(acres)

^{1/} Based on 1945 watershed conditions and 1941 price levels.

EXPECTED FIRE DAMAGE FROM INCREASED RUN-OFF AND EROSION ^{1/}

Fire damage appraisal unit: San Luis Rey River

Unit No. C-24

Area burned by zones	DAMAGE TO IMPROVEMENTS ON UPSTREAM SLOPES BURNED			
	Zone 1	Zone 2	Zone 4	Zone 5
(acres)	(dollars per acre)	(dollars per acre)	(dollars per acre)	(dollars per acre)
0 - 20	0.10	1.60	0.45	0.05
21 - 40	0.40	7.30	2.10	0.30
41 - 60	0.75	12.60	3.65	0.50
61 - 100	1.15	19.90	5.80	0.80
101 - 180	2.00	25.20	10.00	1.35
181 - 300	2.60	25.20	17.20	2.35
301 - 600	2.60	25.20	21.90	4.35
601 - 1000	2.60	25.20	21.90	6.00
1001 - 1750	2.60	25.20	21.90	6.00
Over 1750	2.60	25.20	21.90	6.00
Maximum area for computing damage on slopes	(acres) 4,621	(acres) 2,118	(acres) 27,699	(acres) 26,314
OTHER DAMAGES				
Total area burned in all zones	Upstream canyon bottom	Downstream overflow area	Debris storage and/or removal	Water from stream diversions
(acres)	(dollars per acre)	(dollars per acre)	(dollars per acre)	(dollars per acre)
0 - 20		0.00	0.05	0.00
21 - 40		0.00	0.30	0.05
41 - 60		0.00	0.50	0.10
61 - 100		0.00	0.75	0.15
101 - 180		0.00	1.35	0.20
181 - 300		0.00	2.30	0.40
301 - 600		0.00	4.25	0.70
601 - 1000		0.00	7.70	1.25
1001 - 1750		0.00	9.80	2.15
1751 - 3000		0.05	9.80	2.80
3001 - 5000		0.05	9.80	2.80
5001 - 9000		0.05	9.80	2.80
9001 - 15,000		0.15	9.80	2.80
15,001 - 25,000		0.20	9.80	2.80
25,001 - 50,000		0.40	9.80	2.80
Over 50,000		0.65		
Maximum area for computing other damages	(acres) 60,752	(acres) 60,752	(acres) 60,752	(acres) 60,752

^{1/} Based on 1945 watershed conditions and 1941 price levels.

EXPECTED FIRE DAMAGE FROM INCREASED RUN-OFF AND EROSION ^{1/}

Fire damage appraisal unit: Temecula Creek

Unit No. C-25

Area burned by zones	DAMAGE TO IMPROVEMENTS ON UPSTREAM SLOPES BURNED			
	Zone 1	Zone 2	Zone 4	Zone 5
(acres)	(dollars per acre)	(dollars per acre)	(dollars per acre)	(dollars per acre)
0 - 20	0.00	0.15		
21 - 40	0.10	0.65		
41 - 60	0.20	1.10		
61 - 100	0.30	1.70		
101 - 180	0.50	3.00		
181 - 300	0.85	5.10		
301 - 600	1.60	6.60		
601 - 1000	2.90	6.60		
1001 - 1750	3.70	6.60		
Over 1750	3.70	6.60		
Maximum area for computing damage on slopes	(acres) 24,806	(acres) 25,190	(acres)	(acres)
OTHER DAMAGES				
Total area burned in all zones	Upstream canyon bottom	Downstream overflow area	Debris storage and/or removal	Water from stream diversions
(acres)	(dollars per acre)	(dollars per acre)	(dollars per acre)	(dollars per acre)
0 - 20	0.00	0.00	0.05	0.00
21 - 40	0.00	0.00	0.20	0.00
41 - 60	0.00	0.00	0.35	0.00
61 - 100	0.00	0.00	0.50	0.05
101 - 180	0.00	0.00	0.90	0.05
181 - 300	0.00	0.00	1.55	0.10
301 - 600	0.00	0.00	2.85	0.20
601 - 1000	0.00	0.05	5.20	0.35
1001 - 1750	0.00	0.05	6.50	0.45
1751 - 3000	0.00	0.10	6.50	0.45
3001 - 5000	0.05	0.15	6.50	0.45
5001 - 9000	0.05	0.30	6.50	0.45
9001 - 15,000	0.10	0.50	6.50	0.45
15,001 - 25,000	0.15	0.80	6.50	0.45
25,001 - 50,000	0.35	2.10	6.50	0.45
Over 50,000				
Maximum area for computing other damages	(acres) 49,996	(acres) 49,996	(acres) 49,996	(acres) 49,996

^{1/} Based on 1945 watershed conditions and 1941 price levels.

EXPECTED FIRE DAMAGE FROM INCREASED RUN-OFF AND EROSION ^{1/}

Fire damage appraisal unit: Pechanga Creek

Unit No. C-26

Area burned by zones (acres)	DAMAGE TO IMPROVEMENTS ON UPSTREAM SLOPES BURNED			
	Zone 1 (dollars per acre)	Zone 2 (dollars per acre)	Zone 4 (dollars per acre)	Zone 5 (dollars per acre)
0 - 20	0.00	0.10	0.00	0.00
21 - 40	0.05	0.50	0.10	0.00
41 - 60	0.10	0.90	0.15	0.00
61 - 100	0.10	1.40	0.25	0.00
101 - 180	0.20	2.45	0.45	0.05
181 - 300	0.35	3.20	0.75	0.05
301 - 600	0.45	3.20	0.95	0.10
601 - 1000	0.45	3.20	0.95	
1001 - 1750	0.45	3.20	0.95	
Over 1750	0.45	3.20		
Maximum area for computing damage on slopes	(acres) 1,900	(acres) 1,967	(acres) 1,437	(acres) 467
OTHER DAMAGES				
Total area burned in all zones (acres)	Upstream canyon bottom (dollars per acre)	Downstream overflow area (dollars per acre)	Debris storage and/or removal (dollars per acre)	Water from stream diversions (dollars per acre)
0 - 20	0.00	0.00	0.05	
21 - 40	0.00	0.00	0.35	
41 - 60	0.00	0.00	0.55	
61 - 100	0.00	0.00	0.90	
101 - 180	0.05	0.05	1.55	
181 - 300	0.05	0.05	2.65	
301 - 600	0.10	0.10	4.90	
601 - 1000	0.15	0.20	6.80	
1001 - 1750	0.30	0.30	6.80	
1751 - 3000	0.50	0.55	6.80	
3001 - 5000	0.85	0.90	6.80	
Over 5000	1.25	1.30	6.80	
Maximum area for computing other damages	(acres) 5,777	(acres) 5,777	(acres) 5,777	(acres)

^{1/} Based on 1945 watershed conditions and 1941 price levels.

EXPECTED FIRE DAMAGE FROM INCREASED RUN-OFF AND EROSION ^{1/}

Fire damage appraisal unit: San Mateo Creek

Unit No. C-27

Area burned by zones (acres)	DAMAGE TO IMPROVEMENTS ON UPSTREAM SLOPES BURNED			
	Zone 1 (dollars per acre)	Zone 2 (dollars per acre)	Zone 4 (dollars per acre)	Zone 5 (dollars per acre)
0 - 20	0.00	0.05	0.05	0.00
21 - 40	0.10	0.30	0.15	0.10
41 - 60	0.15	0.50	0.20	0.15
61 - 100	0.20	0.75	0.35	0.20
101 - 180	0.40	1.00	0.60	0.35
181 - 300	0.65	1.00	0.80	0.60
301 - 600	1.20	1.00	0.80	1.15
601 - 1000	1.65	1.00	0.80	1.60
1001 - 1750	1.65	1.00	0.80	1.60
Over 1750	1.65	1.00	0.80	1.60
Maximum area for computing damage on slopes	(acres) 22,028	(acres) 5,741	(acres) 5,286	(acres) 19,693
OTHER DAMAGES				
Total area burned in all zones (acres)	Upstream canyon bottom (dollars per acre)	Downstream overflow area (dollars per acre)	Debris storage and/or removal (dollars per acre)	Water from stream diversions (dollars per acre)
0 - 20	0.00	0.00	0.00	
21 - 40	0.00	0.00	0.05	
41 - 60	0.00	0.00	0.10	
61 - 100	0.00	0.00	0.10	
101 - 180	0.00	0.00	0.20	
181 - 300	0.00	0.00	0.35	
301 - 600	0.00	0.00	0.70	
601 - 1000	0.00	0.00	1.25	
1001 - 1750	0.00	0.00	1.60	
1751 - 3000	0.00	0.00	1.60	
3001 - 5000	0.00	0.00	1.60	
5001 - 9000	0.00	0.00	1.60	
9001 - 15,000	0.00	0.05	1.60	
15,001 - 25,000	0.00	0.10	1.60	
25,001 - 50,000	0.00	0.20	1.60	
Over 50,000	0.00	0.25	1.60	
Maximum area for computing other damages	(acres) 52,748	(acres) 52,748	(acres) 52,748	(acres)

^{1/} Based on 1945 watershed conditions and 1941 price levels.

EXPECTED FIRE DAMAGE FROM INCREASED RUN-OFF AND EROSION ^{1/}

Fire damage appraisal unit: San Juan Creek

Unit No. C-28

Area burned by zones	DAMAGE TO IMPROVEMENTS ON UPSTREAM SLOPES BURNED			
	Zone 1	Zone 2	Zone 4	Zone 5
(acres)	(dollars per acre)	(dollars per acre)	(dollars per acre)	(dollars per acre)
0 - 20	0.50	2.55	0.70	0.10
21 - 40	2.40	11.80	3.25	0.40
41 - 60	4.15	20.30	5.60	0.70
61 - 100	6.60	24.30	6.70	1.15
101 - 180	8.30	24.30	6.70	2.00
181 - 300	8.30	24.30	6.70	3.35
301 - 600	8.30	24.30	6.70	4.30
601 - 1000	8.30	24.30	6.70	4.30
1001 - 1750	8.30	24.30	6.70	4.30
Over 1750	8.30	24.30	6.70	4.30
Maximum area for computing damage on slopes	(acres) 11,577	(acres) 4,821	(acres) 8,851	(acres) 25,453
OTHER DAMAGES				
Total area burned in all zones	Upstream canyon bottom	Downstream overflow area	Debris storage and/or removal	Water from stream diversions
(acres)	(dollars per acre)	(dollars per acre)	(dollars per acre)	(dollars per acre)
0 - 20	0.00	0.00	0.10	0.00
21 - 40	0.00	0.00	0.50	0.00
41 - 60	0.00	0.00	0.90	0.00
61 - 100	0.00	0.00	1.40	0.00
101 - 180	0.00	0.00	2.40	0.00
181 - 300	0.00	0.00	4.15	0.05
301 - 600	0.00	0.00	5.30	0.10
601 - 1000	0.00	0.00	5.30	0.15
1001 - 1750	0.00	0.05	5.30	0.25
1751 - 3000	0.00	0.05	5.30	0.30
3001 - 5000	0.05	0.10	5.30	0.30
5001 - 9000	0.10	0.25	5.30	0.30
9001 - 15,000	0.20	0.55	5.30	0.30
15,001 - 25,000	0.40	1.05	5.30	0.30
25,001 - 50,000	0.80	2.05	5.30	0.30
Over 50,000	1.10	2.90	5.30	0.30
Maximum area for computing other damages	(acres) 50,702	(acres) 50,702	(acres) 50,702	(acres) 50,702

^{1/} Based on 1945 watershed conditions and 1941 price levels.

EXPECTED FIRE DAMAGE FROM INCREASED RUN-OFF AND EROSION ^{1/}

Fire damage appraisal unit: Trabuco Canyon

Unit No. C-29

Area burned by zones (acres)	DAMAGE TO IMPROVEMENTS ON UPSTREAM SLOPES BURNED			
	Zone 1 (dollars per acre)	Zone 2 (dollars per acre)	Zone 4 (dollars per acre)	Zone 5 (dollars per acre)
0 - 20	0.00	0.05	0.45	0.05
21 - 40	0.05	0.25	2.20	0.30
41 - 60	0.10	0.45	3.75	0.50
61 - 100	0.15	0.50	4.50	0.80
101 - 180	0.15	0.50	4.50	1.40
181 - 300	0.15	0.50	4.50	2.40
301 - 600	0.15	0.50	4.50	3.10
601 - 1000	0.15	0.50	4.50	3.10
1001 - 1750	0.15	0.50	4.50	3.10
Over 1750	0.15	0.50	4.50	3.10
Maximum area for computing damage on slopes	(acres) 2,644	(acres) 1,843	(acres) 3,738	(acres) 7,667
OTHER DAMAGES				
Total area burned in all zones (acres)	Upstream canyon bottom (dollars per acre)	Downstream overflow area (dollars per acre)	Debris storage and/or removal (dollars per acre)	Water from stream diversions (dollars per acre)
0 - 20	0.00	0.00	0.15	
21 - 40	0.00	0.00	0.65	
41 - 60	0.00	0.00	1.10	
61 - 100	0.00	0.00	1.75	
101 - 180	0.05	0.05	3.05	
181 - 300	0.05	0.10	5.20	
301 - 600	0.10	0.20	6.70	
601 - 1000	0.15	0.35	6.70	
1001 - 1750	0.30	0.60	6.70	
1751 - 3000	0.50	1.00	6.70	
3001 - 5000	0.85	1.70	6.70	
5001 - 9000	1.45	2.95	6.70	
9001 - 15,000	2.45	5.10	6.70	
Over 15,000	3.35	6.90	6.70	
Maximum area for computing other damages	(acres) 15,892	(acres) 15,892	(acres) 15,892	(acres)

^{1/} Based on 1945 watershed conditions and 1941 price levels.

EXPECTED FIRE DAMAGE FROM INCREASED RUN-OFF AND EROSION ^{1/}

Fire damage appraisal unit: Santiago Creek

Unit No. C-30

Area burned by zones	DAMAGE TO IMPROVEMENTS ON UPSTREAM SLOPES BURNED			
	Zone 1	Zone 2	Zone 4	Zone 5
(acres)	(dollars per acre)	(dollars per acre)	(dollars per acre)	(dollars per acre)
0 - 20	0.05	0.85	1.80	0.10
21 - 40	0.20	4.00	8.30	0.45
41 - 60	0.35	6.90	14.40	0.80
61 - 100	0.60	8.20	22.70	1.25
101 - 180	1.00	8.20	28.80	2.15
181 - 300	1.35	8.20	28.80	3.65
301 - 600	1.35	8.20	28.80	4.65
601 - 1000	1.35	8.20	28.80	4.65
1001 - 1750	1.35	8.20	28.80	4.65
Over 1750	1.35	8.20	28.80	4.65
Maximum area for computing damage on slopes	(acres) 4,301	(acres) 4,825	(acres) 10,758	(acres) 19,943
OTHER DAMAGES				
Total area burned in all zones	Upstream canyon bottom	Downstream overflow area	Debris storage and/or removal	Water from stream diversions
(acres)	(dollars per acre)	(dollars per acre)	(dollars per acre)	(dollars per acre)
0 - 20	0.00	0.00	1.50	0.00
21 - 40	0.00	0.00	6.90	0.00
41 - 60	0.00	0.00	12.00	0.00
61 - 100	0.00	0.00	18.90	0.00
101 - 180	0.00	0.00	32.80	0.00
181 - 300	0.00	0.00	56.50	0.00
301 - 600	0.05	0.05	72.00	0.05
601 - 1000	0.05	0.10	72.00	0.10
1001 - 1750	0.10	0.20	72.00	0.10
1751 - 3000	0.25	0.35	72.00	0.10
3001 - 5000	0.45	0.75	72.00	0.10
5001 - 9000	1.00	1.60	72.00	0.10
9001 - 15,000	2.00	3.20	72.00	0.10
15,001 - 25,000	3.60	5.80	72.00	0.10
25,001 - 50,000	7.50	12.20	72.00	0.10
Over 50,000				
Maximum area for computing other damages	(acres) 39,827	(acres) 39,827	(acres) 39,827	(acres) 39,827

^{1/} Based on 1945 watershed conditions and 1941 price levels.

EXPECTED FIRE DAMAGE FROM INCREASED RUN-OFF AND EROSION ^{1/}

Fire damage appraisal unit: Sierra Canyon

Unit No. C-31

Area burned by zones (acres)	DAMAGE TO IMPROVEMENTS ON UPSTREAM SLOPES BURNED			
	Zone 1 (dollars per acre)	Zone 2 (dollars per acre)	Zone 4 (dollars per acre)	Zone 5 (dollars per acre)
0 - 20	0.90		0.15	0.05
21 - 40	4.10		0.70	0.20
41 - 60	7.10		1.20	0.30
61 - 100	11.20		1.90	0.50
101 - 180	19.40		2.40	0.85
181 - 300	25.40		2.40	1.50
301 - 600	25.40		2.40	1.90
601 - 1000	25.40		2.40	1.90
1001 - 1750	25.40		2.40	1.90
Over 1750			2.40	1.90
Maximum area for computing damage on slopes	(acres) 1,340	(acres)	(acres) 3,712	(acres) 8,492
OTHER DAMAGES				
Total area burned in all zones (acres)	Upstream canyon bottom (dollars per acre)	Downstream overflow area (dollars per acre)	Debris storage and/or removal (dollars per acre)	Water from stream diversions (dollars per acre)
0 - 20		0.00	0.45	
21 - 40		0.00	2.05	
41 - 60		0.00	3.50	
61 - 100		0.05	5.50	
101 - 180		0.05	9.60	
181 - 300		0.10	16.40	
301 - 600		0.20	21.00	
601 - 1000		0.35	21.00	
1001 - 1750		0.60	21.00	
1751 - 3000		1.05	21.00	
3001 - 5000		1.75	21.00	
5001 - 9000		3.05	21.00	
9001 - 15,000		6.00	21.00	
Over 15,000				
Maximum area for computing other damages	(acres)	(acres) 13,544	(acres) 13,544	(acres)

^{1/} Based on 1945 watershed conditions and 1941 price levels.

EXPECTED FIRE DAMAGE FROM INCREASED RUN-OFF AND EROSION ^{1/}

Fire damage appraisal unit: Elsinore

Unit No. C-32

Area burned by zones (acres)	DAMAGE TO IMPROVEMENTS ON UPSTREAM SLOPES BURNED			
	Zone 1 (dollars per acre)	Zone 2 (dollars per acre)	Zone 4 (dollars per acre)	Zone 5 (dollars per acre)
0 - 20	1.10	2.70		
21 - 40	4.95	12.30		
41 - 60	8.60	17.00		
61 - 100	10.30	17.00		
101 - 180	10.30	17.00		
181 - 300	10.30	17.00		
301 - 600	10.30	17.00		
601 - 1000	10.30	17.00		
1001 - 1750	10.30	17.00		
Over 1750	10.30	17.00		
Maximum area for computing damage on slopes	(acres) 4,902	(acres) 2,688	(acres)	(acres)
OTHER DAMAGES				
Total area burned in all zones (acres)	Upstream canyon bottom (dollars per acre)	Downstream overflow area (dollars per acre)	Debris storage and/or removal (dollars per acre)	Water from stream diversions (dollars per acre)
0 - 20		0.45	2.35	0.05
21 - 40		2.10	10.80	0.15
41 - 60		3.65	18.70	0.25
61 - 100		5.80	29.50	0.40
101 - 180		10.00	51.50	0.65
181 - 300		17.20	67.50	1.15
301 - 600		31.80	67.50	1.45
601 - 1000		57.50	67.50	1.45
1001 - 1750		73.00	67.50	1.45
1751 - 3000		73.00	67.50	1.45
3001 - 5000		73.00	67.50	1.45
Over 5000		73.00	67.50	1.45
Maximum area for computing other damages	(acres)	(acres) 7,590	(acres) 7,590	(acres) 7,590

^{1/} Based on 1945 watershed conditions and 1941 price levels.

EXPECTED FIRE DAMAGE FROM INCREASED RUN-OFF AND EROSION ^{1/}

Fire damage appraisal unit: Lee Lake

Unit No. C-33

Area burned by zones (acres)	DAMAGE TO IMPROVEMENTS ON UPSTREAM SLOPES BURNED			
	Zone 1 (dollars per acre)	Zone 2 (dollars per acre)	Zone 4 (dollars per acre)	Zone 5 (dollars per acre)
0 - 20	0.10	0.35		
21 - 40	0.40	1.60		
41 - 60	0.65	2.75		
61 - 100	1.05	3.30		
101 - 180	1.80	3.30		
181 - 300	2.35	3.30		
301 - 600	2.35	3.30		
601 - 1000	2.35	3.30		
1001 - 1750	2.35	3.30		
Over 1750	2.35	3.30		
Maximum area for computing damage on slopes	(acres) 7,469	(acres) 8,205	(acres)	(acres)
OTHER DAMAGES				
Total area burned in all zones (acres)	Upstream canyon bottom (dollars per acre)	Downstream overflow area (dollars per acre)	Debris storage and/or removal (dollars per acre)	Water from stream diversions (dollars per acre)
0 - 20		0.00	1.55	0.00
21 - 40		0.00	7.20	0.00
41 - 60		0.05	12.50	0.05
61 - 100		0.05	19.70	0.05
101 - 180		0.10	34.20	0.10
181 - 300		0.20	58.70	0.15
301 - 600		0.35	74.90	0.30
601 - 1000		0.60	74.90	0.55
1001 - 1750		1.00	74.90	0.65
1751 - 3000		1.75	74.90	0.65
3001 - 5000		2.30	74.90	0.65
5001 - 9000		2.30	74.90	0.65
9001 - 15,000		2.30	74.90	0.65
Over 15,000		2.30	74.90	0.65
Maximum area for computing other damages	(acres)	(acres) 15,674	(acres) 15,674	(acres) 15,674

^{1/} Based on 1945 watershed conditions and 1941 price levels.

EXPECTED FIRE DAMAGE FROM INCREASED RUN-OFF AND EROSION ^{1/}

Fire damage appraisal unit: Corona

Unit No. C-34

Area burned by zones (acres)	DAMAGE TO IMPROVEMENTS ON UPSTREAM SLOPES BURNED			
	Zone 1 (dollars per acre)	Zone 2 (dollars per acre)	Zone 4 (dollars per acre)	Zone 5 (dollars per acre)
0 - 20	0.20	3.30		
21 - 40	0.85	15.20		
41 - 60	1.50	26.20		
61 - 100	2.35	31.40		
101 - 180	4.10	31.40		
181 - 300	5.40	31.40		
301 - 600	5.40	31.40		
601 - 1000	5.40	31.40		
1001 - 1750	5.40	31.40		
Over 1750	5.40	31.40		
Maximum area for computing damage on slopes	(acres) 15,085	(acres) 9,344	(acres)	(acres)
OTHER DAMAGES				
Total area burned in all zones (acres)	Upstream canyon bottom (dollars per acre)	Downstream overflow area (dollars per acre)	Debris storage and/or removal (dollars per acre)	Water from stream diversions (dollars per acre)
0 - 20		0.00	3.25	0.00
21 - 40		0.00	15.00	0.10
41 - 60		0.80	26.00	0.15
61 - 100		1.25	41.00	0.25
101 - 180		2.20	71.00	0.45
181 - 300		3.75	122.00	0.75
301 - 600		7.00	156.00	1.40
601 - 1000		12.60	156.00	1.95
1001 - 1750		21.50	156.00	1.95
1751 - 3000		37.30	156.00	1.95
3001 - 5000		62.50	156.00	1.95
5001 - 9000		80.00	156.00	1.95
9001 - 15,000		80.00	156.00	1.95
Over 15,000		80.00	156.00	1.95
Maximum area for computing other damages	(acres)	(acres) 24,429	(acres) 24,429	(acres) 24,429

^{1/} Based on 1945 watershed conditions and 1941 price levels.

FIRE DAMAGE APPRAISAL UNIT MAPS

Cleveland National Forest

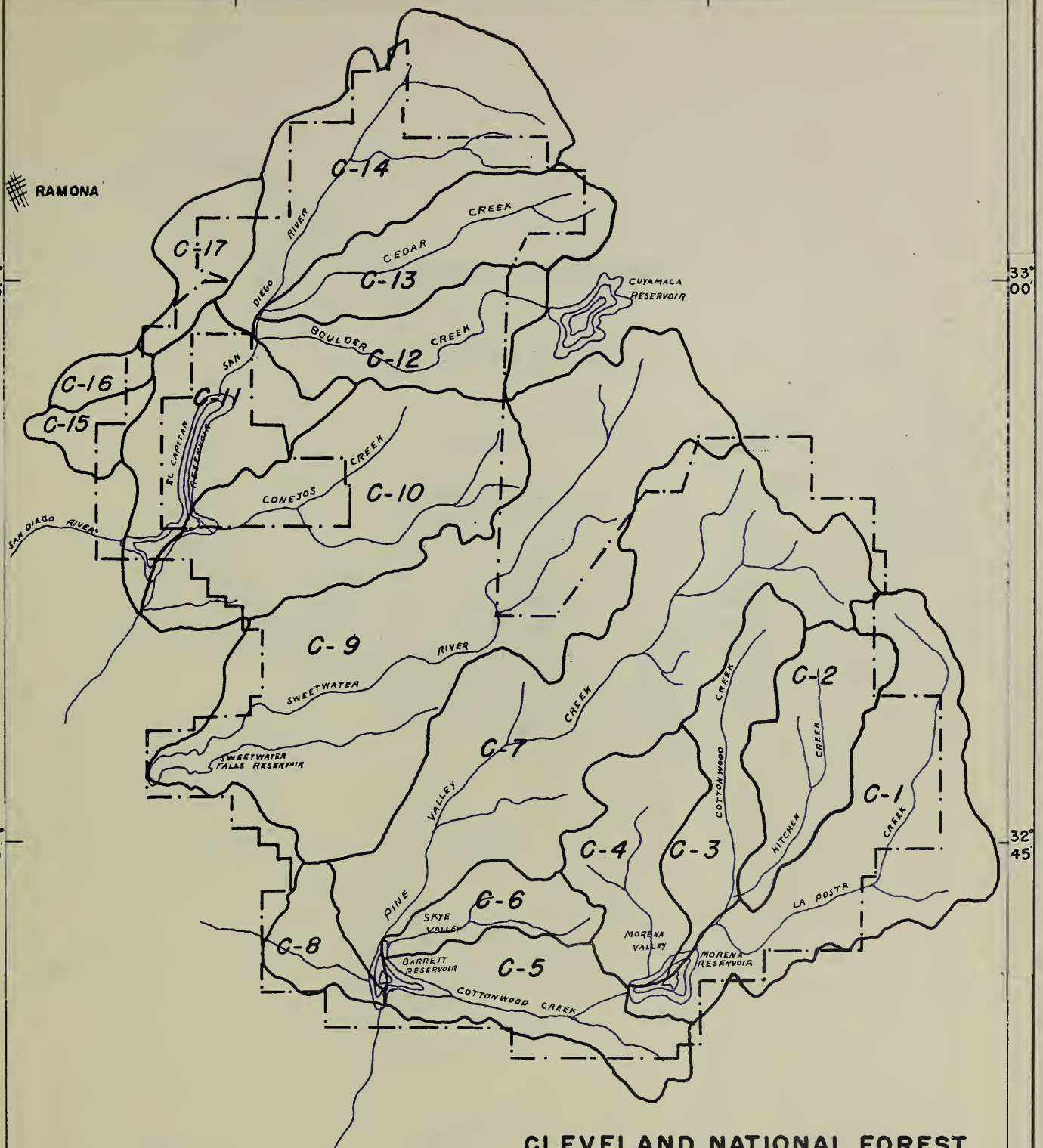
FIRE DAMAGE APPRAISAL UNIT MAPS

Descanso Ranger District

<u>No.</u>	<u>Name</u>
C-1	La Posta Creek
2	Kitchen Creek
3	Cottonwood Creek
4	Bear Valley
5	Barrett Lake
6	Skye Valley
7	Pine Valley Creek
8	Wilson Creek
9	Sweetwater River
10	Conejos Creek
11	El Capitan Reservoir
12	Boulder Creek
13	Cedar Creek
14	San Diego River
15	Featherstone Canyon
16	Wright Canyon
17	Mt. Gower

116° 45'

116° 30'



LEGEND

- C-12 UNIT NUMBER
- UNIT BOUNDARY
- - - NATIONAL FOREST BOUNDARY
- ~ STREAM

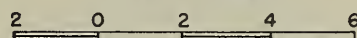
CLEVELAND NATIONAL FOREST

DESCANSO RANGER DISTRICT

FIRE DAMAGE APPRAISAL UNITS

1948

SCALE IN MILES



CALIFORNIA FOREST & RANGE EXPERIMENT STATION

116° 45'

116° 30'

FIRE DAMAGE APPRAISAL UNIT MAPS

Palomar Ranger District

<u>No.</u>	<u>Name</u>
C-18	Roden Canyon
19	Black Canyon
20	Temescal Creek
21	Agua Caliente Creek
22	Puerta La Cruz Creek
23	West Fork San Luis Rey River
24	San Luis Rey River
25	Temecula Creek
26	Pechanga Creek



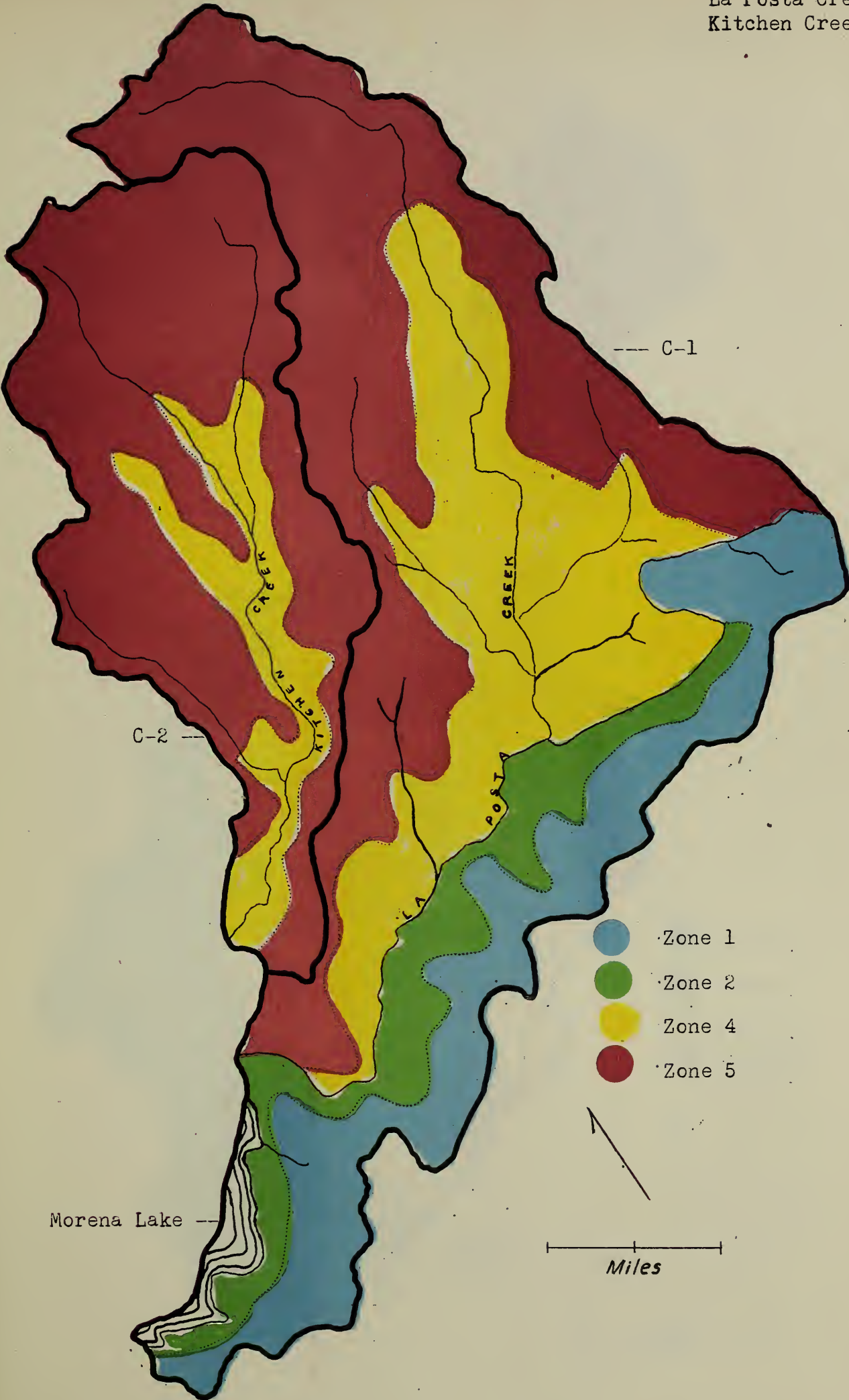
FIRE DAMAGE APPRAISAL UNIT MAPS

Trabuco Ranger District

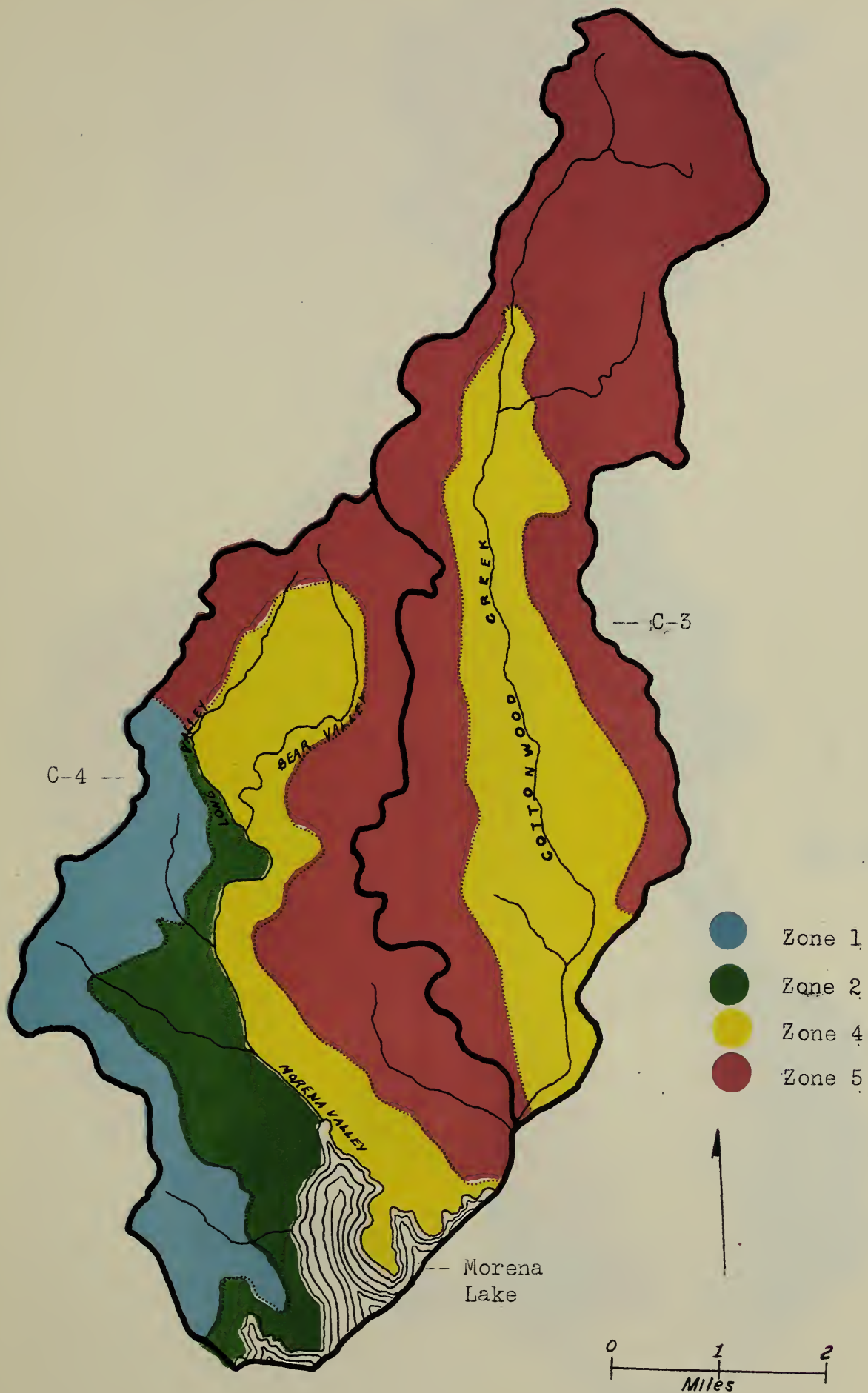
<u>No.</u>	<u>Name</u>
C-27	San Mateo Creek
28	San Juan Creek
29	Trabuco Canyon
30	Santiago Creek
31	Sierra Canyon
32	Elsinore
33	Lee Lake
34	Corona

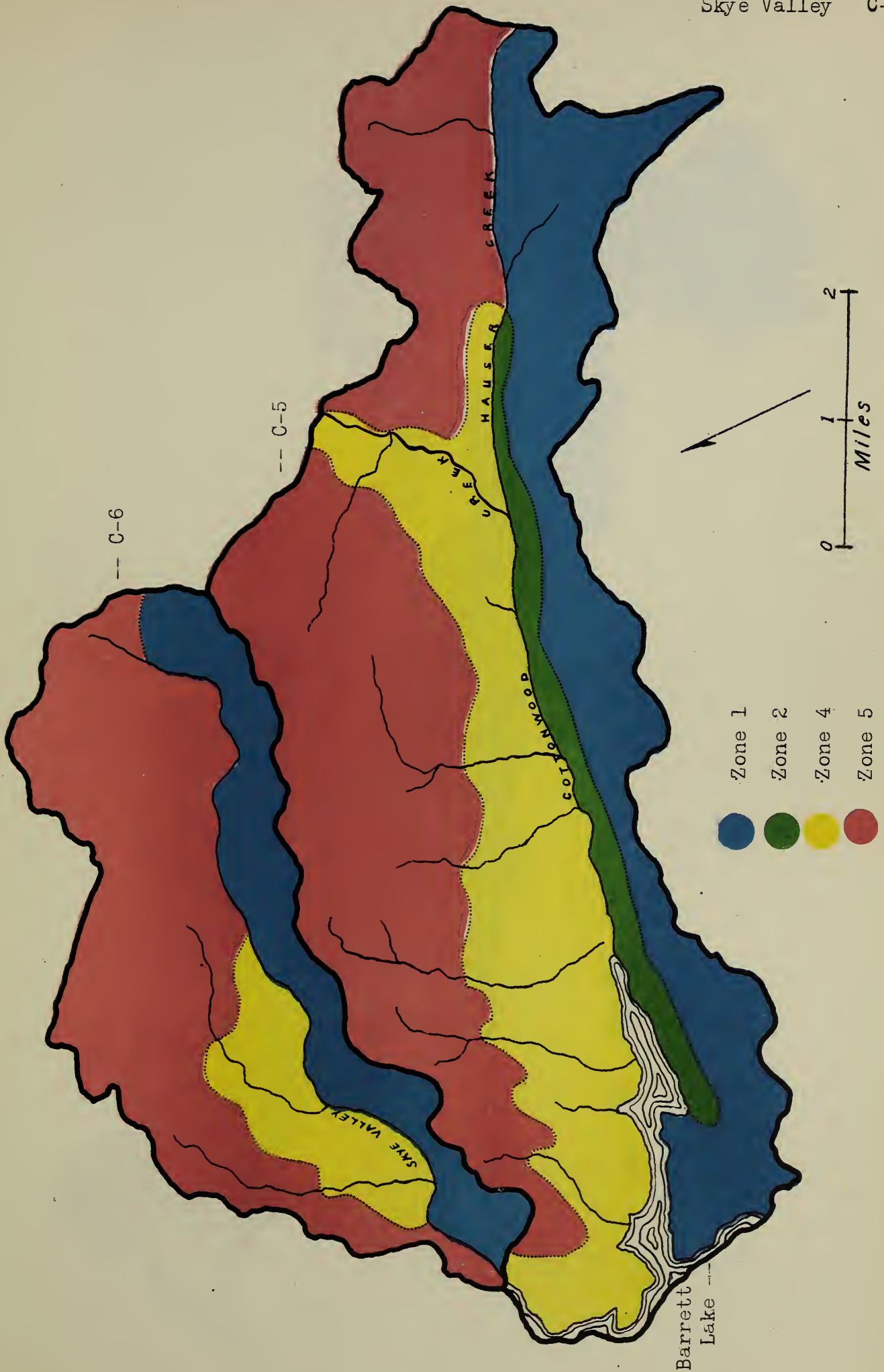


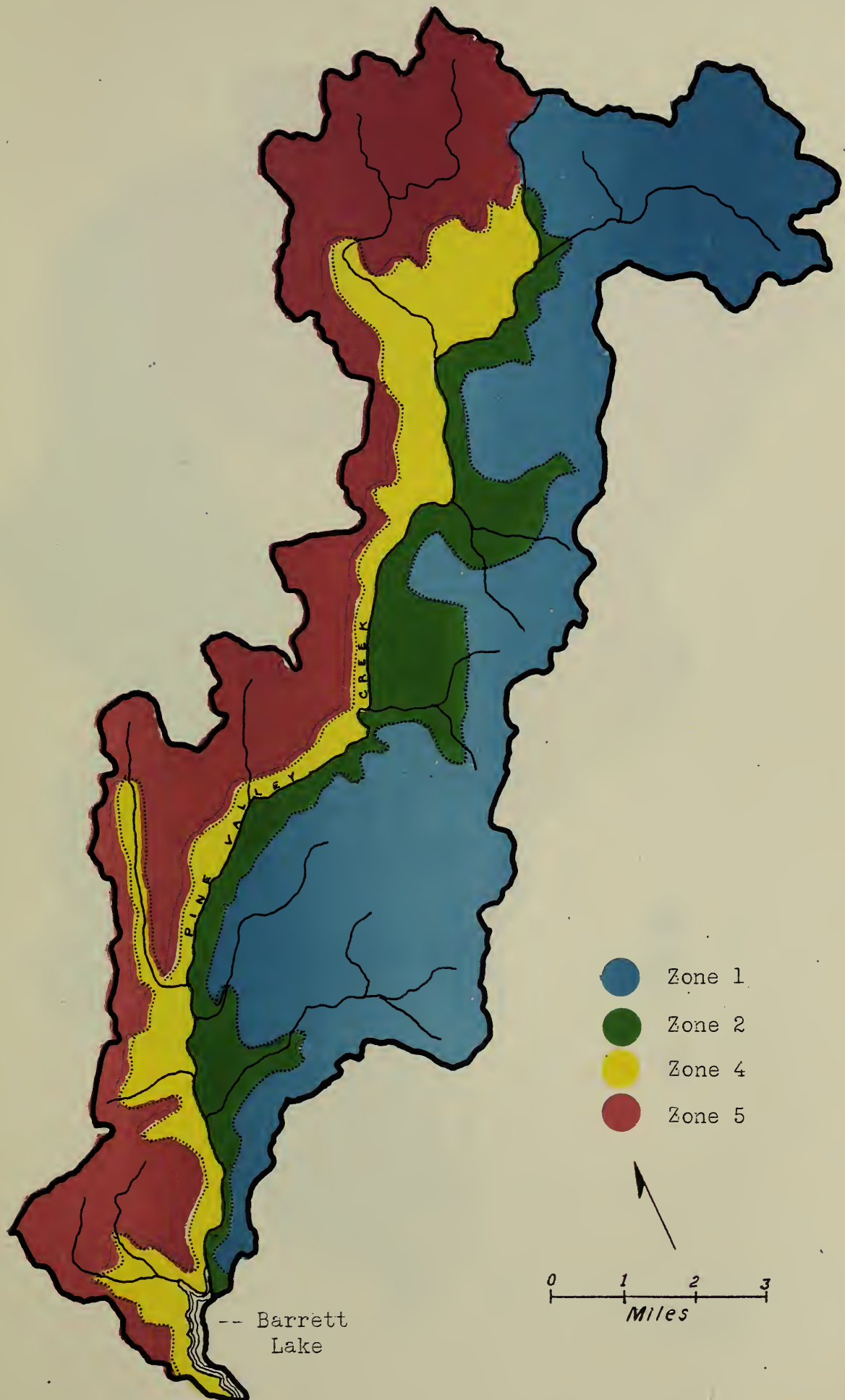
La Posta Creek C-1
Kitchen Creek C-2

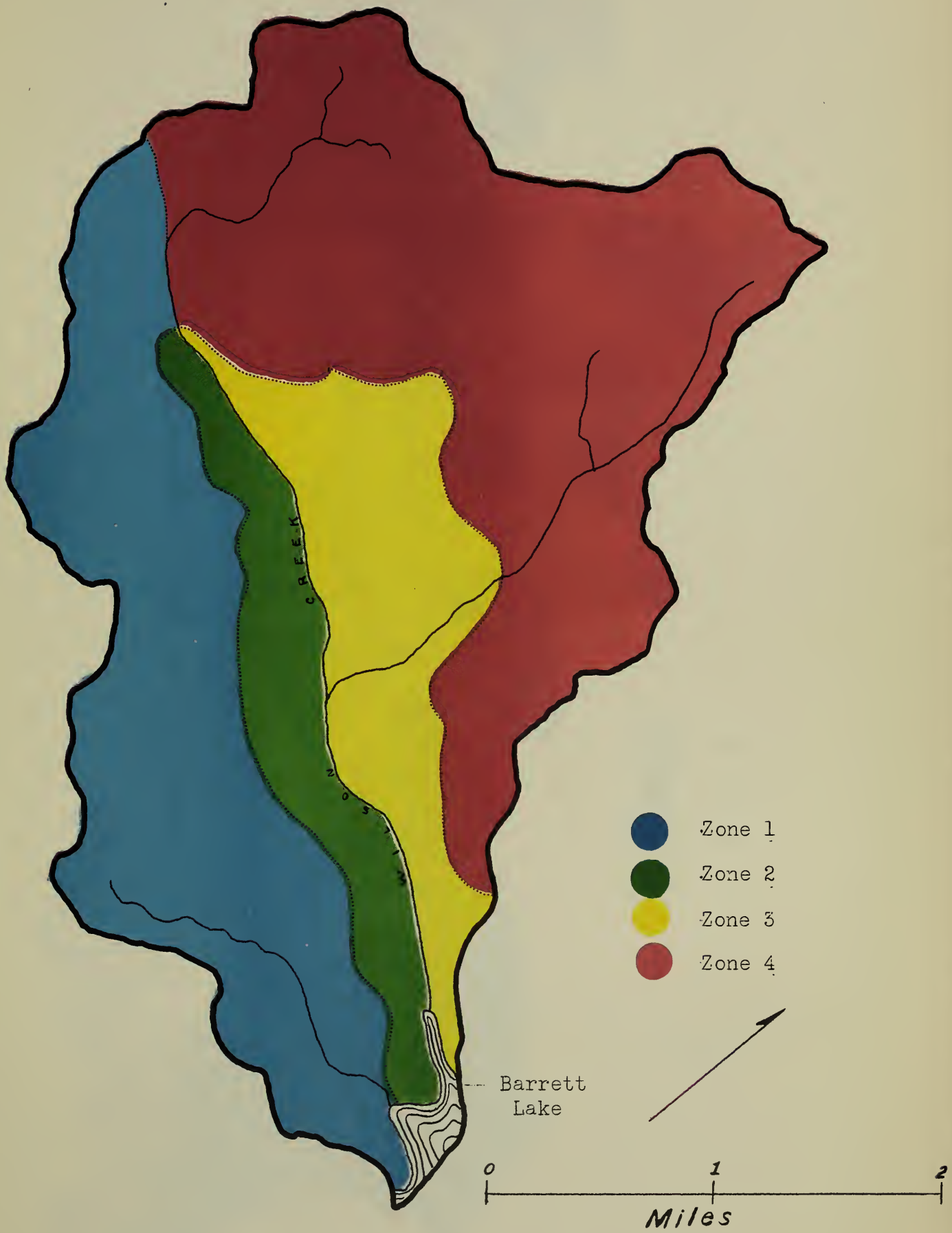


Cottonwood Creek C-3
 Bear Valley C-4

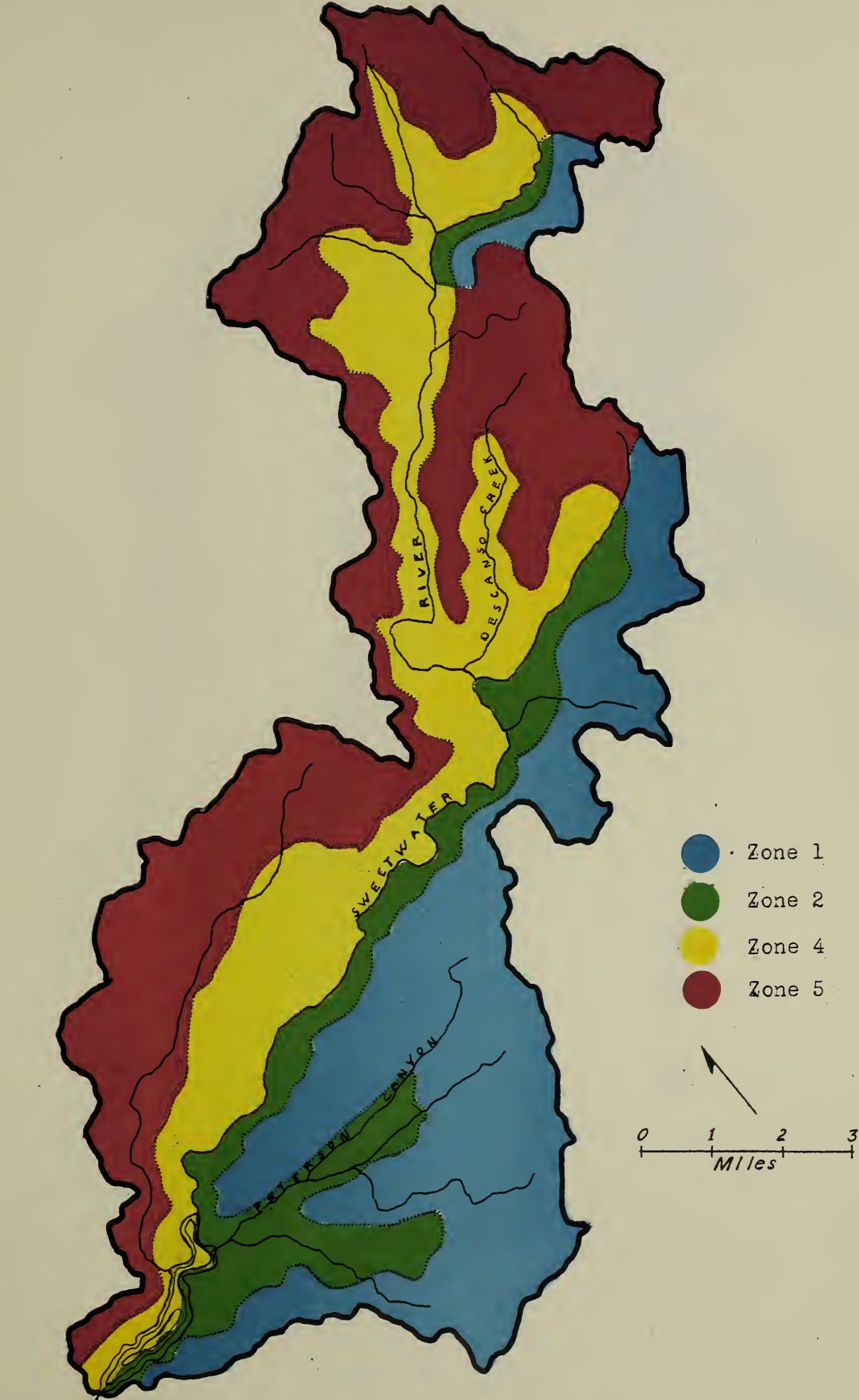






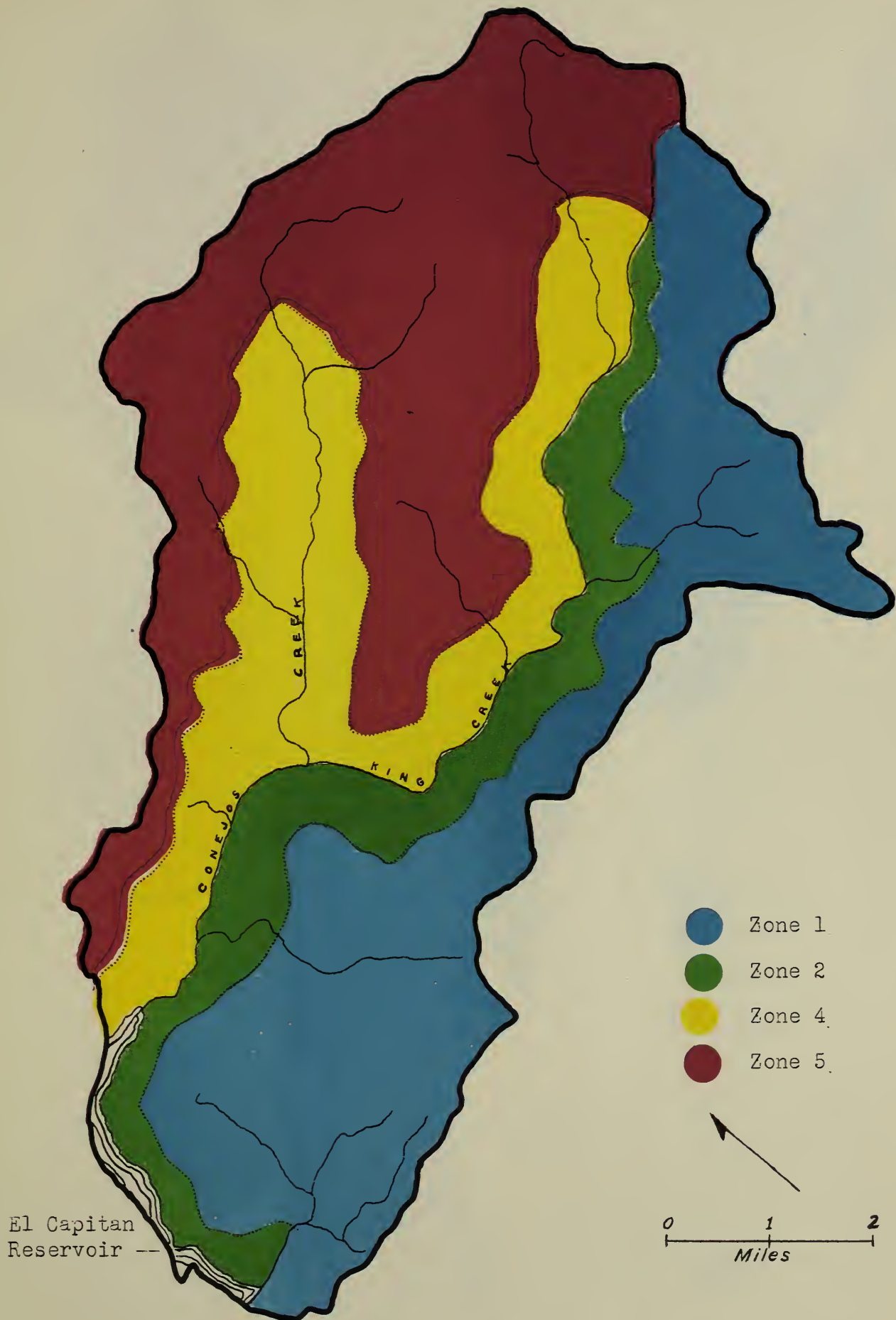




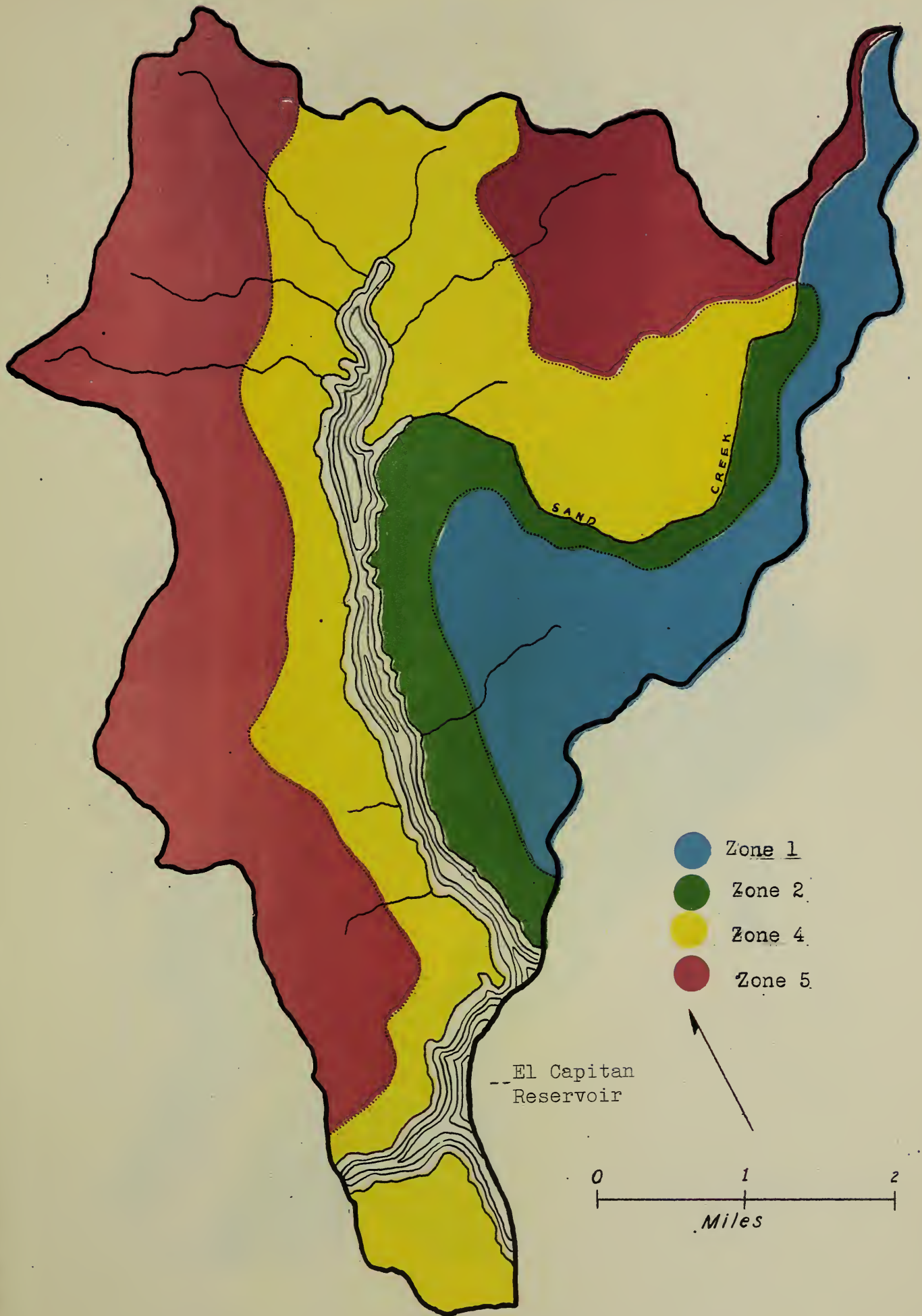


Sweetwater Falls
Reservoir

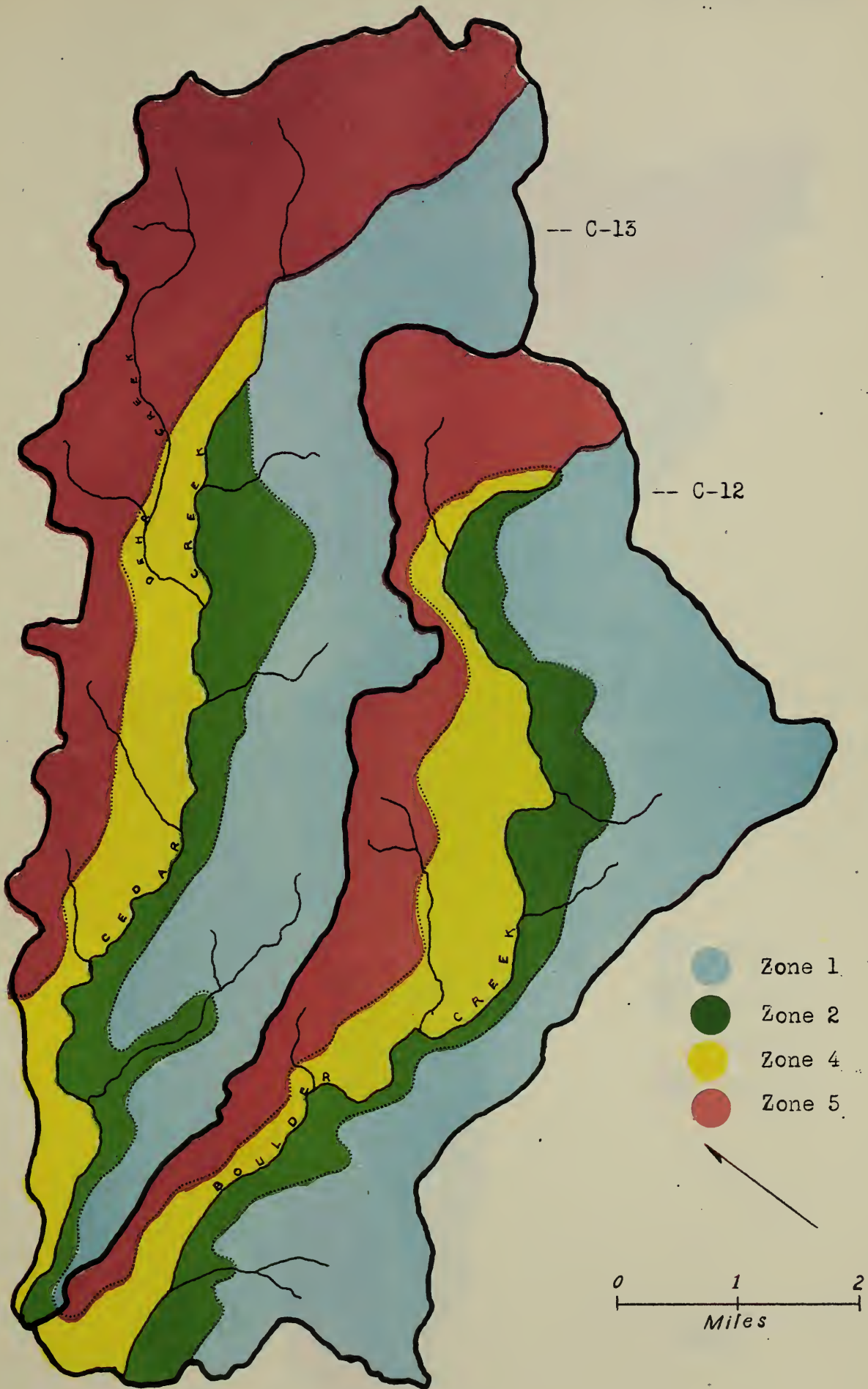


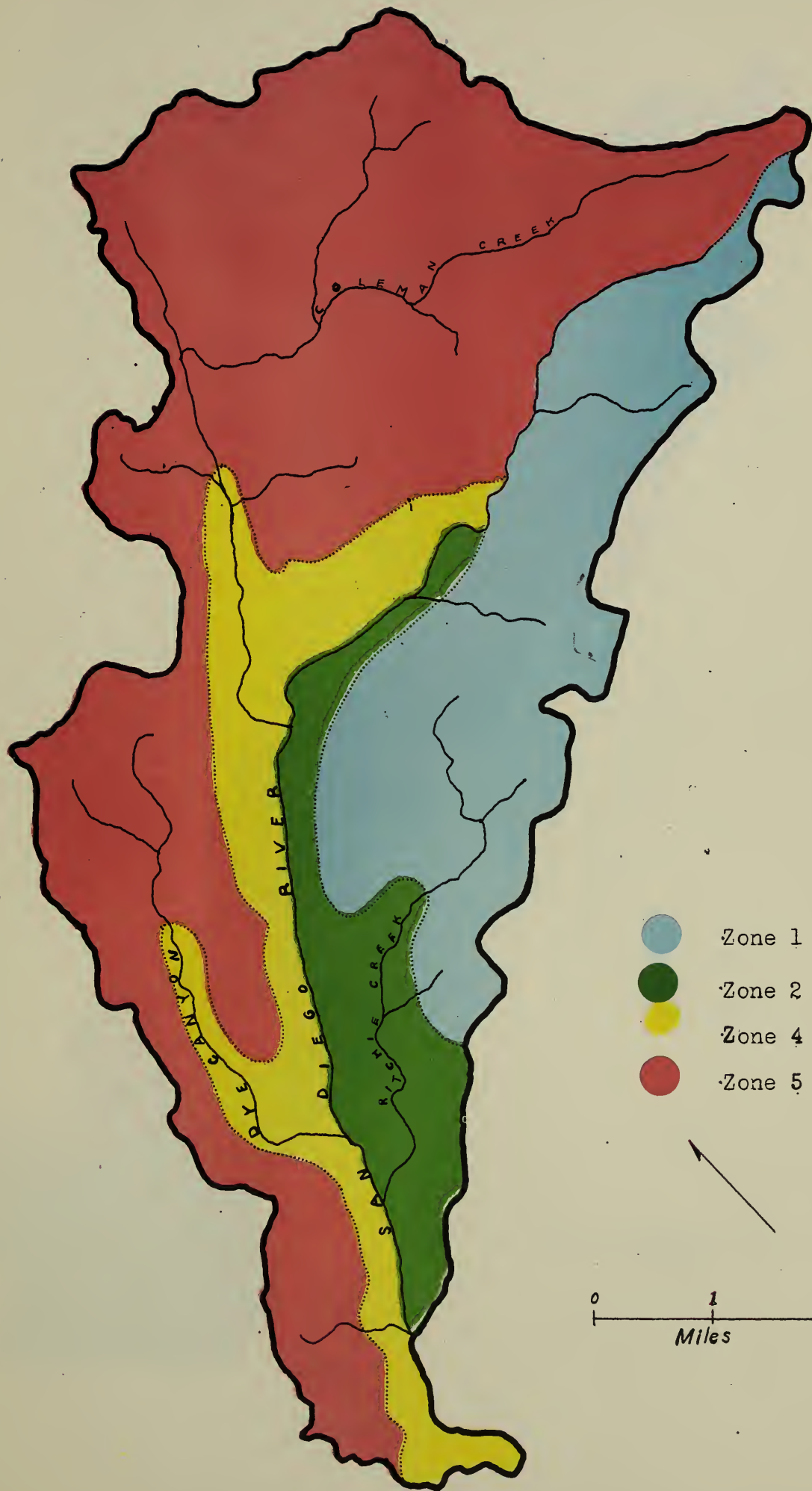




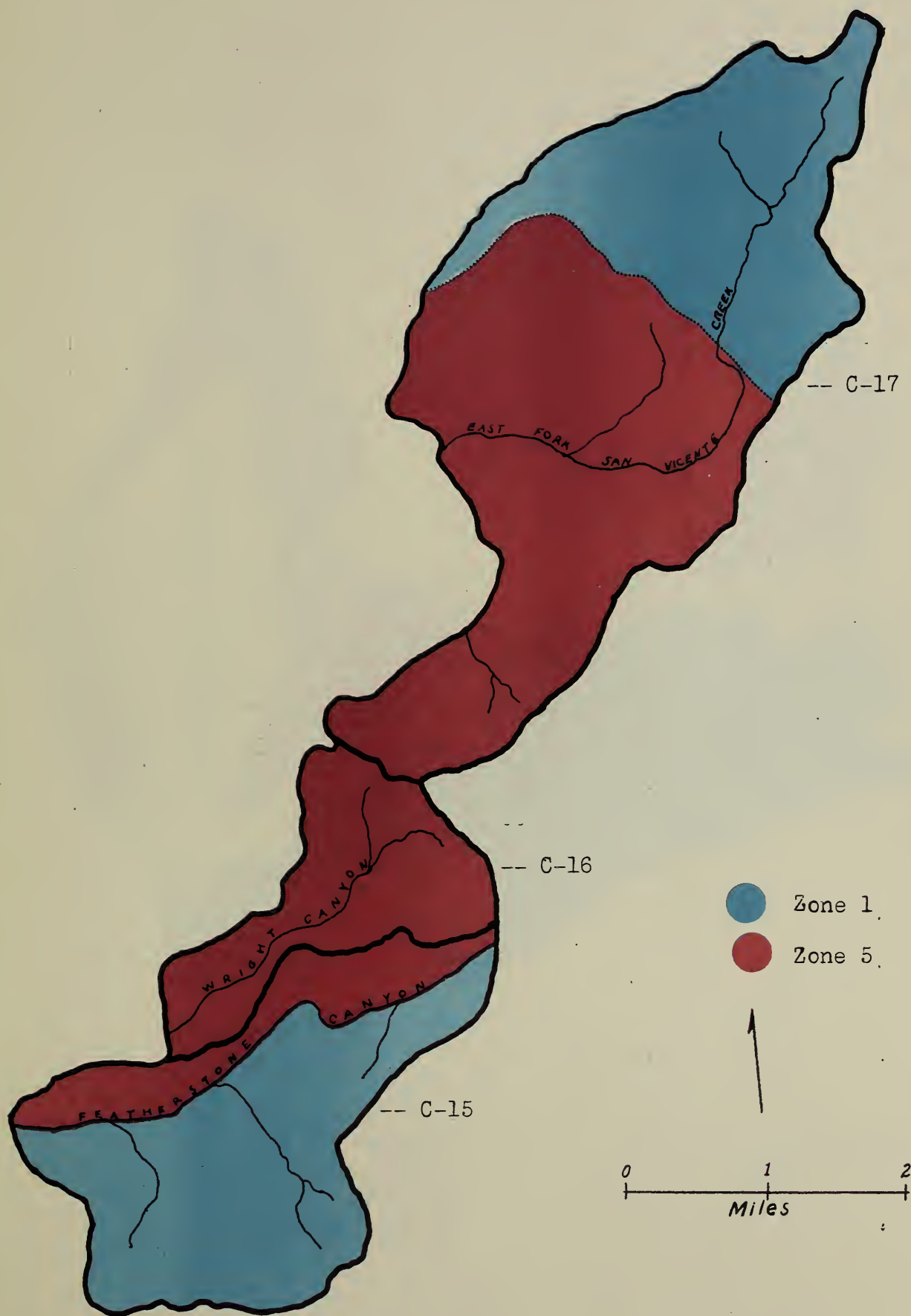


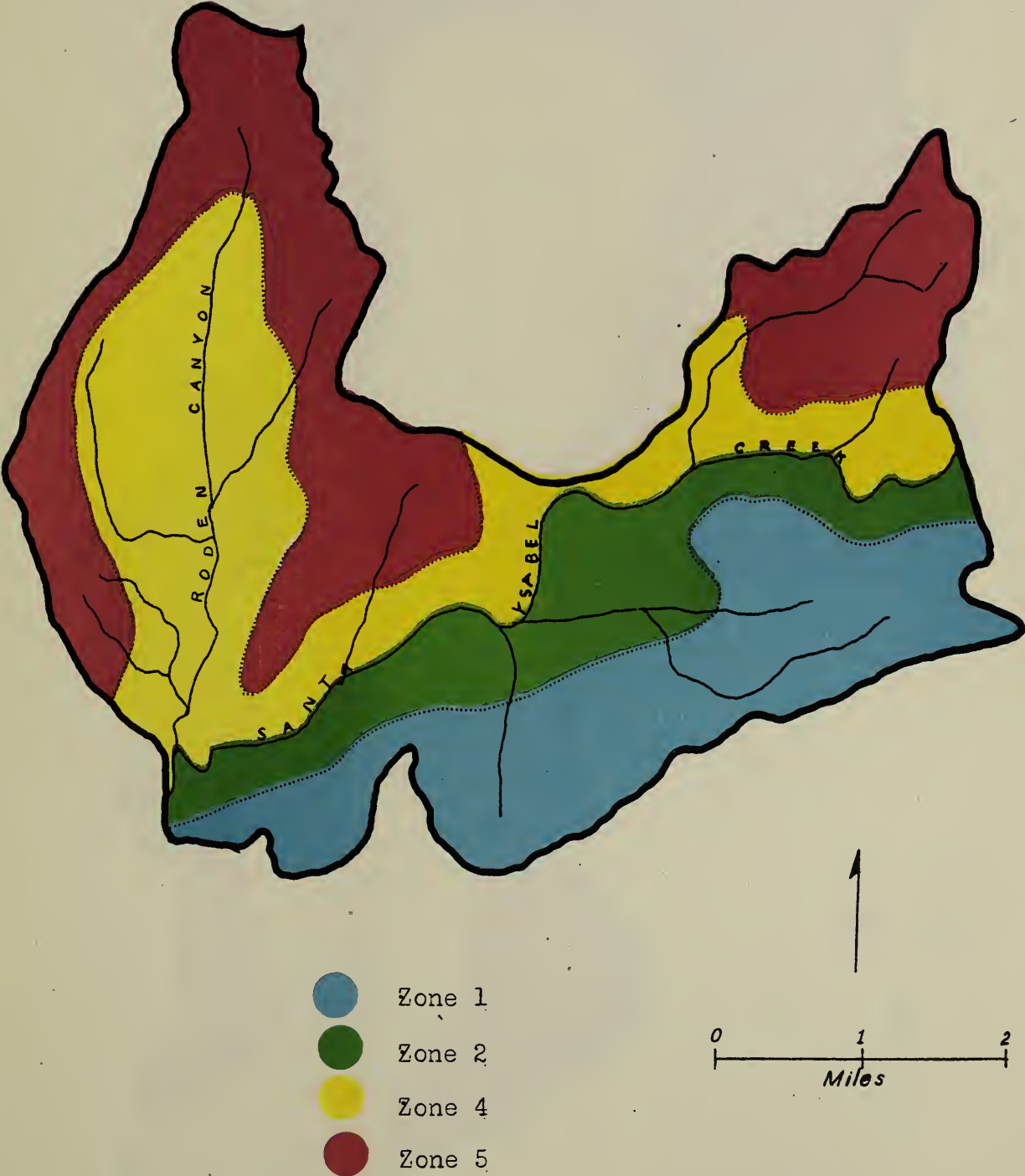
Boulder Creek C-12
Cedar Creek C-13





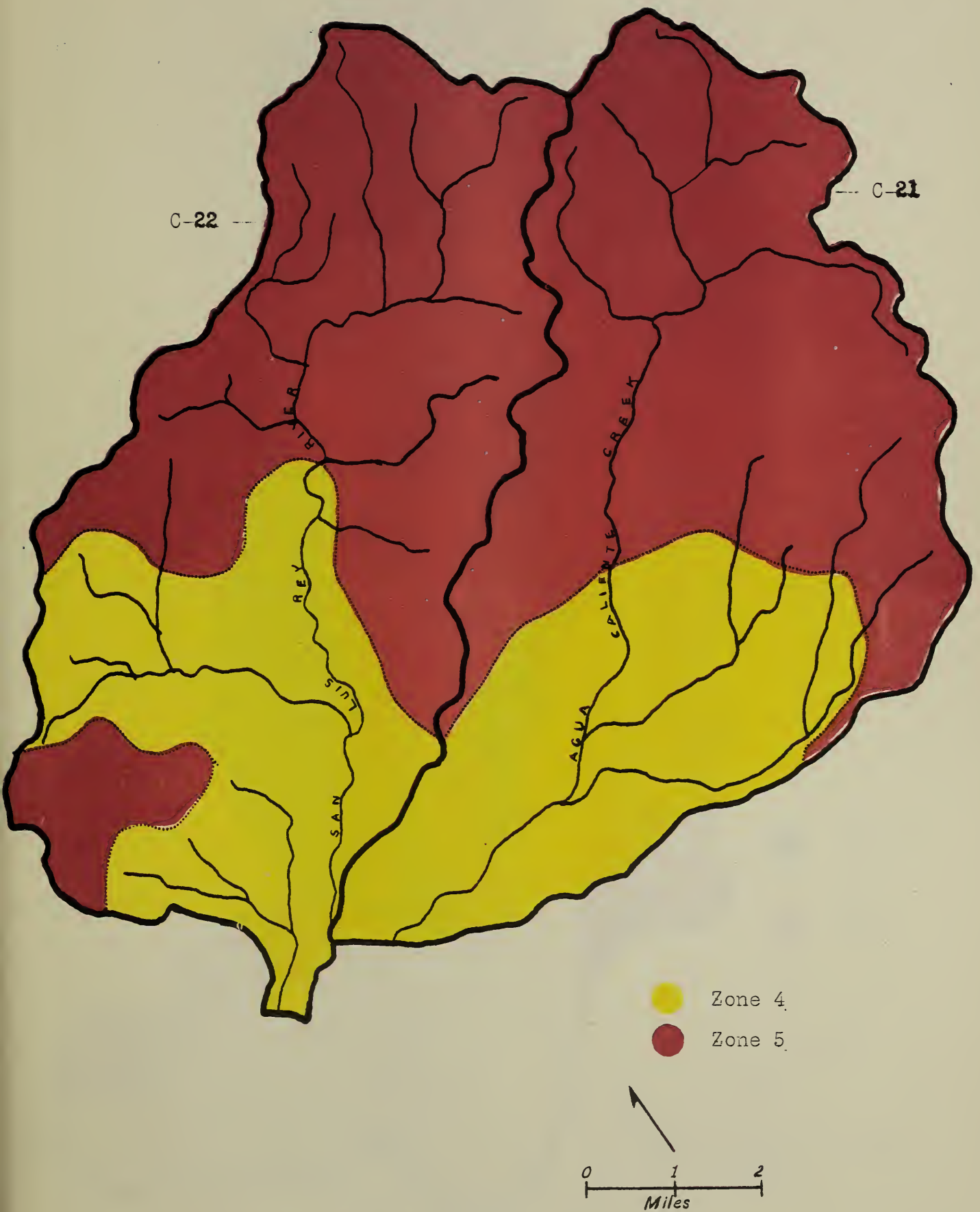
Featherstone Canyon	C-15
Wright Canyon	C-16
Mt. Gower	C-17

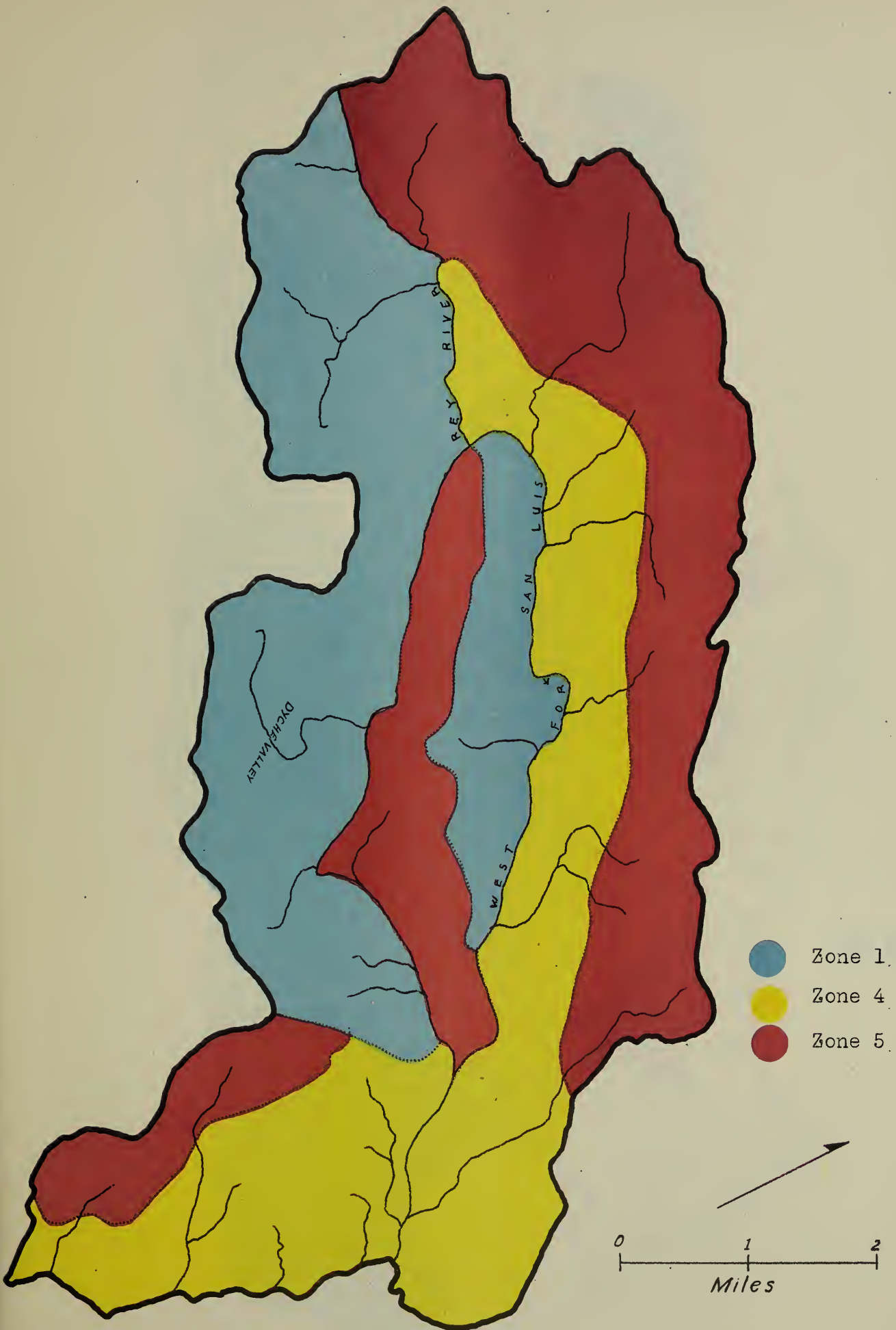


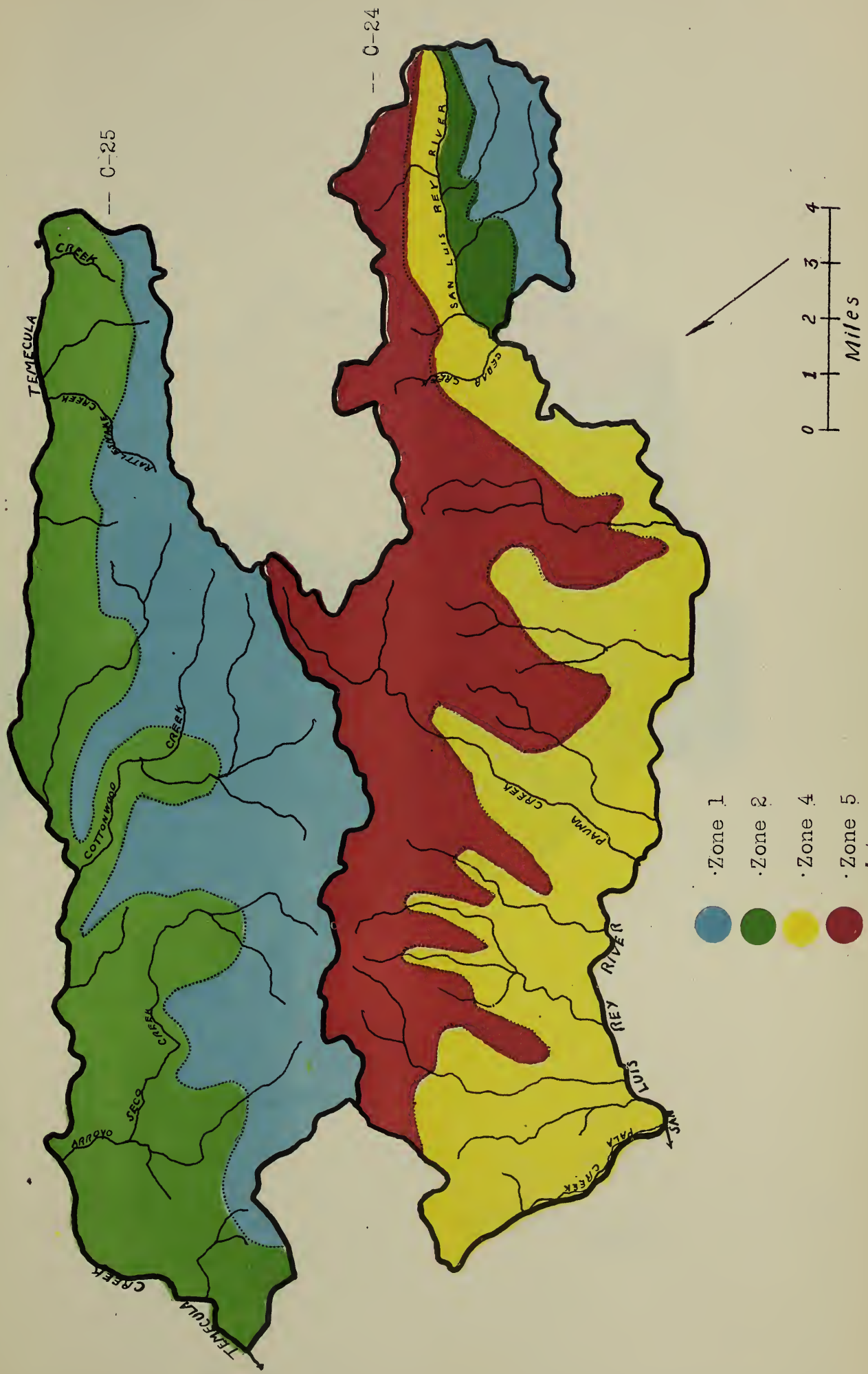


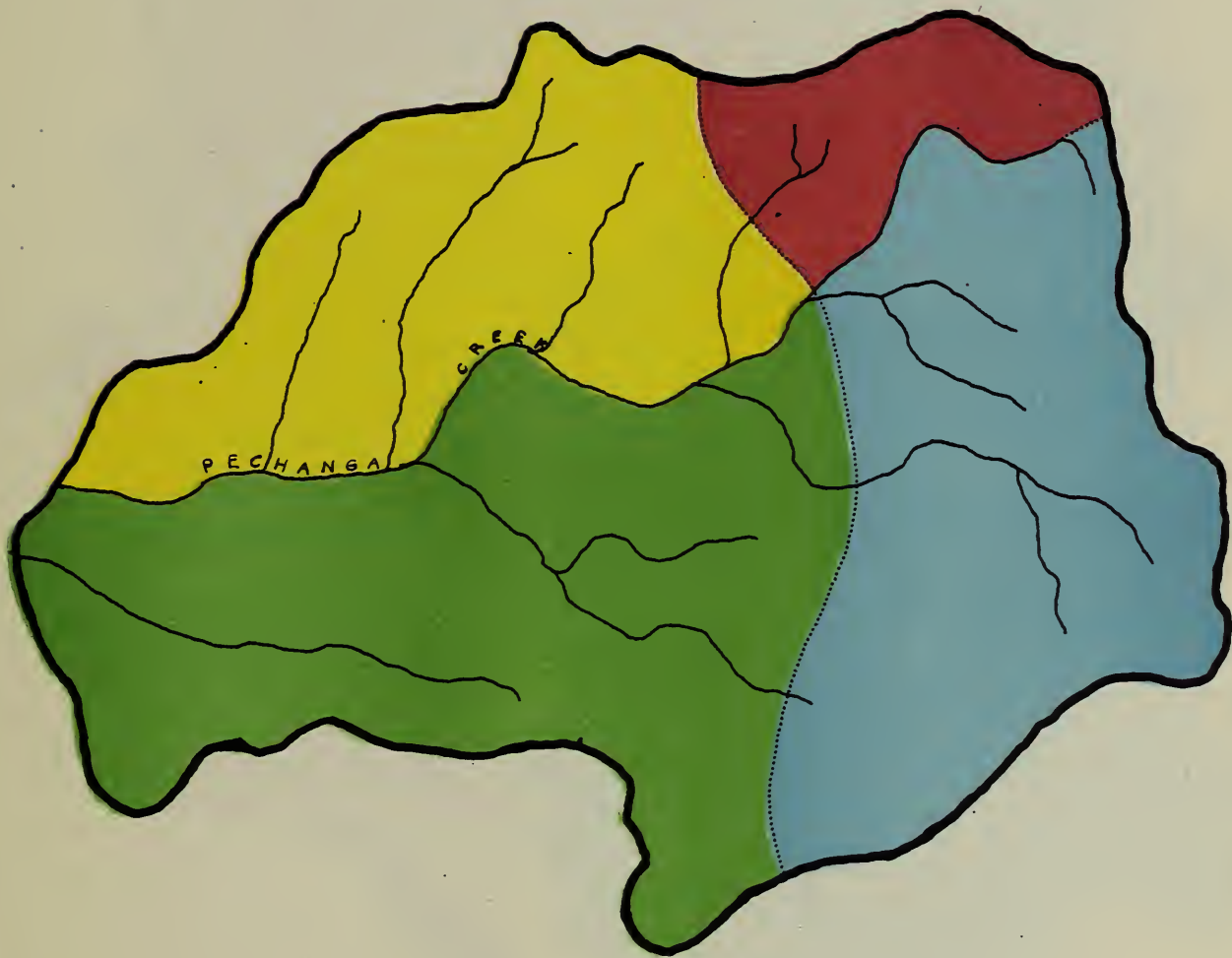








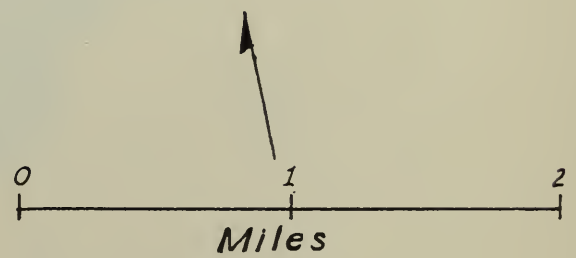


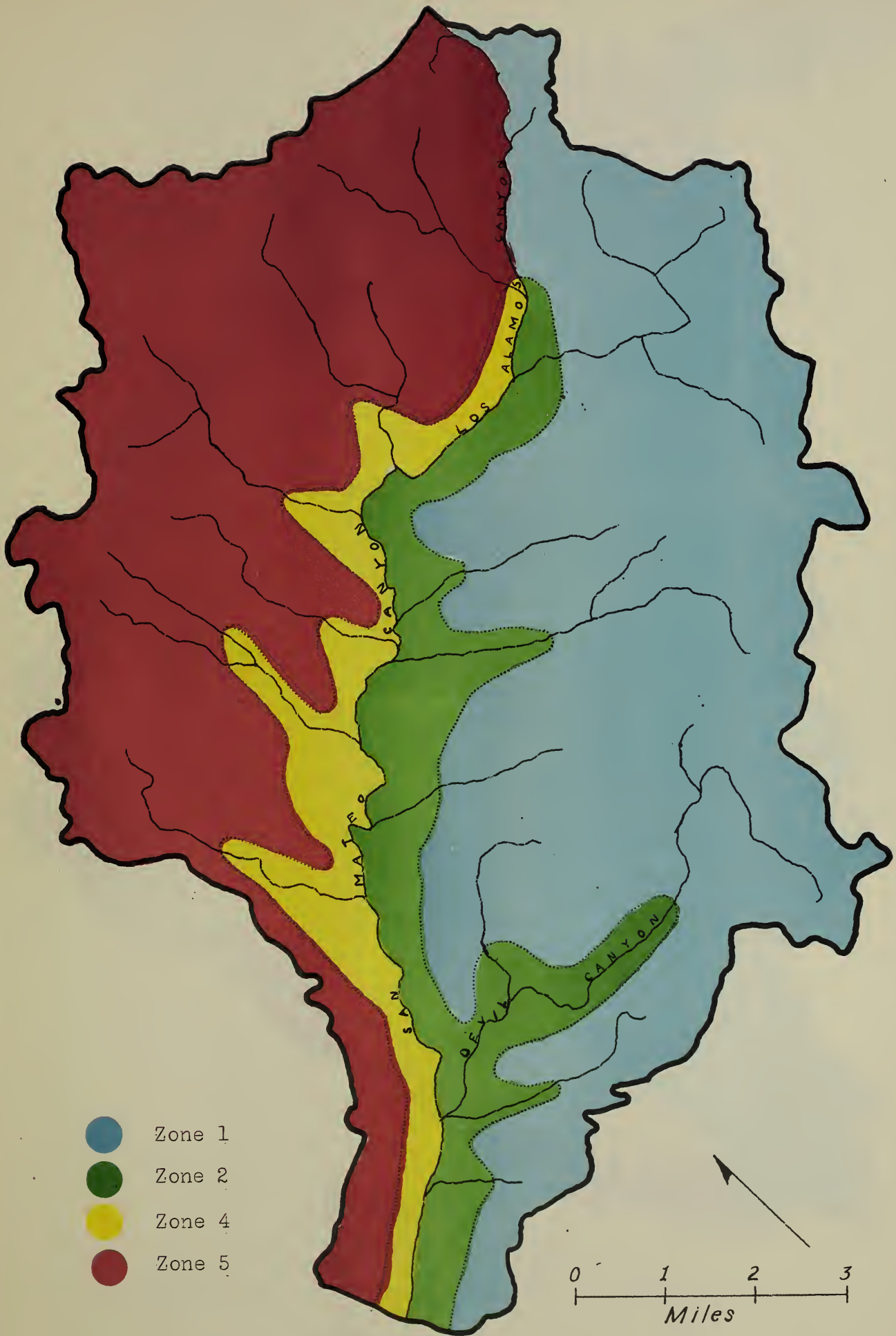


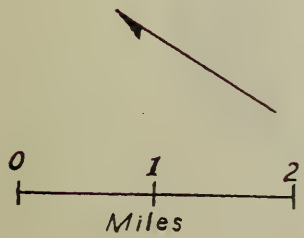
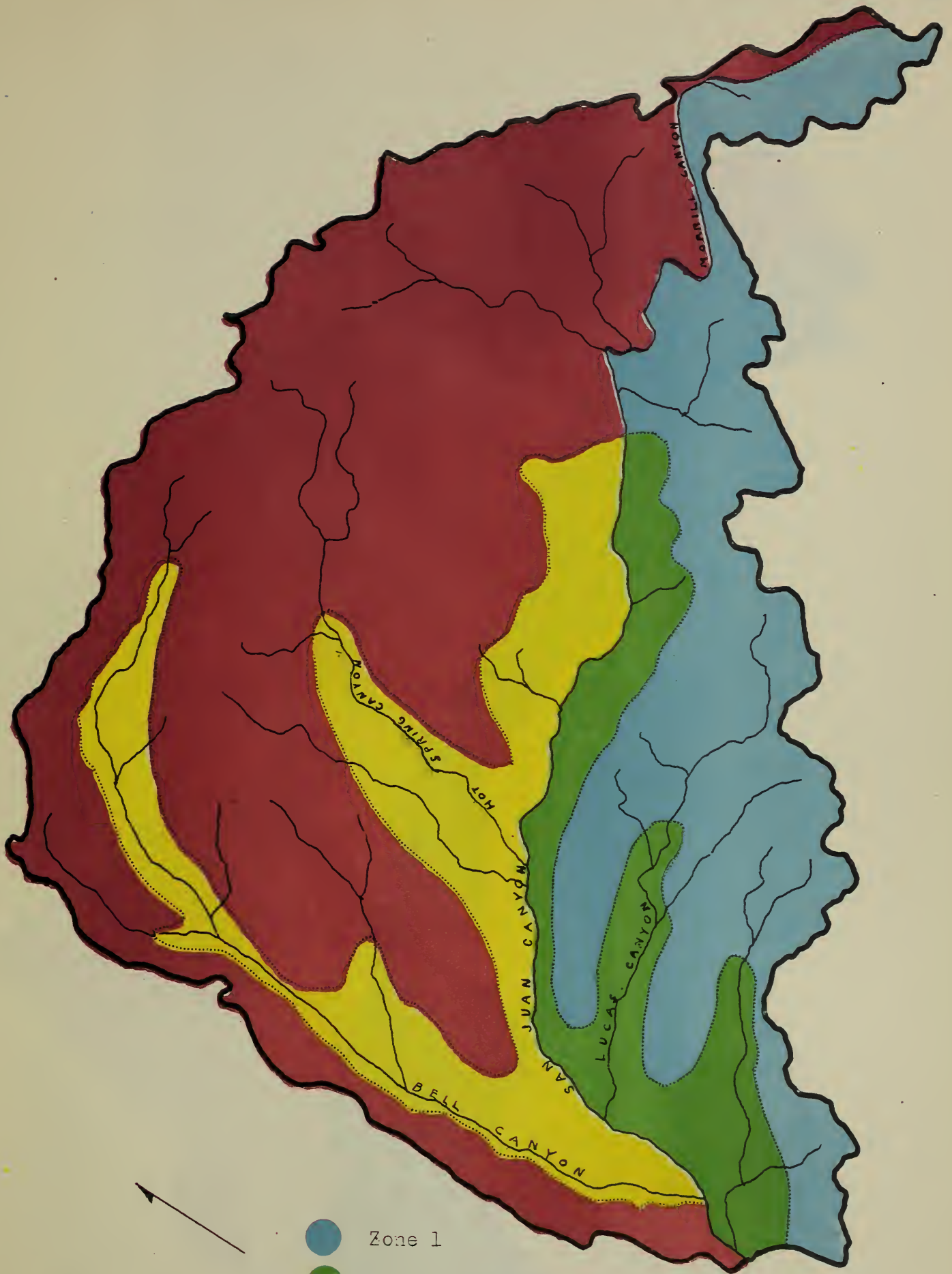




-  Zone 1
-  Zone 2
-  Zone 4
-  Zone 5







- Zone 1
- Zone 2
- Zone 4
- Zone 5

